LEVELS OF CUSTOMER SATISFACTION IN A HOSPITAL CAFETERIA AFTER A CONTRACT MANAGEMENT COMPANY ASSUMED MANAGEMENT OF THE FOOD SERVICE DEPARTMENT

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woman who loves the lord, who has the ability to see the good in all things, who is not afraid, and a woman whose knowledge, wisdom, and loving heart are reflected in everything that she does.

TABLE OF CONTENTS

Chapter Page

III. METHODOLOGY AND RESEARCH DESIGN

IV. RESULTS

V. DISCUSSION

Chapter Page

LIST OF TABLES

Table

Page

CHAPTER I

INTRODUCTION

The health care industry is facing the most extensive changes and price controls in history. Hospital administrators continue looking for ways to reduce expenditures and increase productivity as the number of days patients spend in the hospital decreases. Responsible management is critical and it is safe to say that the health care industry is being forced to do more with less. A result of these efforts is leading an increasing number of hospitals to consider contract management services in ancillary departments such as maintenance, housekeeping, laundry, and food service.

The use of contract management services is not new, but trends indicate an increased consideration, if not an increased use of contract management services (Zaccarelli and Ninemeier, 1982, p. 1). The reasons an increasing number of hospitals are contracting out ancillary service departments such as food service are common. Hospital administrators across the United States are finding that maintaining customer preference and utilization have become increasingly difficult. Economic forces driving such difficulty include capitation, managed care organizations (MCOs), health care organizations (HMOs), corporate mandates, and competitive enticements.

Service is among the most critical functions an organization is expected to perform. With today's financial pressures and the necessity to do more with less,

customers are critical to the success of food service businesses. Managers must recognize the needs of their customers or they won't survive. This includes hospital food service. Whether the service rendered is patient food service or employee cafeteria service, the customers' perception of service will ultimately impact the overall evaluation and acceptance of the food served.

Customers must be identified before attempts can be made to satisfy them. Juran (1992) defines the customer as anyone who is impacted by the product or process. Furthermore, "customers may be external or internal". In a hospital cafeteria the customers include employees, physicians, students, patients, and visitors. Although many factors affect the customers' perception of service, food service personnel have the greatest impact on the customers' perception followed by sanitation, quality, taste, temperature, and appearance (Ruf, 1989).

Many hospital employees only have 30 minute meal breaks which can make it difficult for them to eat anywhere else other than the hospital cafeteria. However, increasing competition in the food service industry continuously reminds managers that hospital employees and other potential customers do not have to purchase their meals within the facility. Brown bag lunches continue to be an option for employees, but the competitive enticements from outside sources also provide options to hospital employees through drive through and delivery services and the location of fast food restaurants within walking distance of hospitals (Spears, 1991).

Increasing competition among food service management companies and the rush to embrace Total Quality Management have led companies to take a strong look at quality measurement programs that attempt to relate product and service attributes to customer

evaluations of quality (Hauser and Clausing, 1988; Zeithaml, 1988). In many service industries, companies have created programs that include customer satisfaction surveys to elicit customers' assessments of service quality. These feedback loops allow service and quality changes to be implemented and then evaluated with subsequent survey data. Customer satisfaction is crucial to a food service establishment's survival. Customer satisfaction is a major concern when monitoring the quality of service and how satisfaction is affected by change, specific interventions or treatments. The implications of dissatisfied customers in a hospital cafeteria can lead to decreased cafeteria sales revenue and daily customer count. Research has demonstrated the strategic benefits of quality management in contributing to market share and return on investment (Phillips, Chang, and Buzzell, 1983).

Customer satisfaction/dissatisfaction began to emerge as a major topic in the field of consumer research in the late 1970s (Andreasen, 1977; Berkman & Gilson, 1986). Gulledge (1990) indicated that customer satisfaction is a result of what customers think will happen (expectations), interacting with what customers think did happen (perceptions). When a purchase expectation is perceived to have been rewarded as a result of the purchase, the customer receives satisfaction (Berkman & Gilson, 1986). This will prompt repeat purchases. Dissatisfaction occurs when customers' expectations and perceptions are not matched.

Bader (1988) states that expectations about health care become the standards people use, consciously or unconsciously, to evaluate their care. This theory is applicable when examining customers' expectations about the food service in comparison to how they evaluate the service. Therefore, it is important for the institution to be

knowledgeable about customers' expectations. When expectations and actual experiences are congruent, customers are more likely to be satisfied with service. The failure of any organization, whether health care or food service, to meet the customers' expectations could result in a poor public reputation and consequently decreased customer count and revenues.

Statement of the Problem

Service is one of the most critical functions a food service business is expected to perform. Customer expectations become the standards customers use when evaluating the service thus illustrating the importance that food service managers understand customer expectations. Failure to meet and exceed such expectations could result in poor customer satisfaction which could lead to decreased customer count and decreased revenues.

One way of monitoring customer satisfaction is by asking customers to evaluate the perceived level of service. Such a feedback loop allows service changes to be implemented and then evaluated with subsequent survey data.

One of the challenges a management company is faced with when taking over a new account is determining baseline customer satisfaction levels and striving to improve them. On June 1, 1996, Company X, one of the nation's largest contract management companies, assumed management of the food service department at a 425 bed hospital. This study was conducted to determine the cafeteria customers' satisfaction levels

approximately three months after the start date of the contract and to compare those levels to data collected by the management company at the start of the contract period.

Purpose

The purpose of this study was to identify the level of customer satisfaction (baseline data) at the time the contract management company assumed responsibility of the retail cafeteria at a 425 bed hospital and to compare the level of customer satisfaction approximately three months after the start date of the contract.

The management company's contract began June 1, 1996 and included the patient food service, cafeteria food service, and catering. On September 1, 1996, the company assumed management of the food court located across the hall from the cafeteria. Until September 1, 1996, the food court was managed by Company Y, another management company. At the time Company X assumed management of the food court, September1, it was closed for remodeling and not scheduled to re-open until January, 1997. The closing of the food court generated a concern relating to the increased customer traffic in the cafeteria, particularly during the lunch meal. Most cafeteria customers are hospital employees who only have a 30 minute lunch break. The closing of the food court either forced customers who might have eaten in the food court to purchase their meals in the cafeteria or find other alternatives. Due to the many changes taking place during the first three months of the contract period, it was important that customer satisfaction be closely monitored. This study will be useful to management when satisfaction is measured again after the renovation project is complete, throughout the course of the contract, and as other changes occur.

The parameters measured in this study included food quality, sanitation, service, and value.

Scope

The scope of this study included:

1. A determination of customer satisfaction levels identified by the researcher three months after the contract period started in comparison to the satisfaction levels identified by Company X surveys (pre-test) at the time Company X assumed management of the food service department.
2. The questions asked were in areas identified as important to Company X.

Objectives

The objectives formulated for this study were to:

1. Identify the level of satisfaction in relation to food quality three months after the start date of the management contract.
2. Identify the level of satisfaction in relation to customer service three months after the start date of the management contract.
3. Identify the level of satisfaction in relation to sanitation and cleanliness three months after the start date of the management contract.
4. Identify the level of satisfaction in relation to value three months after the start date of the management contract.
5. Identify the customers' retail preferences three months after the start date of the contract.
6. Compare the researcher's post-test results to Company X's pre-test (baseline data) results.

Null Hypotheses

The following null hypotheses were postulated for this study:

Ho1: There will be no significant difference in the level of customer satisfaction three months after the management company assumed responsibility of the food service department.

Ho2: There will be no significant difference in the customers' retail preferences three months after the management company assumed responsibility of the food service department.

Assumptions

It was assumed that participants in this study:

1. were representative of the customers dining in the hospital cafeteria;
2. completed the survey to the best of their ability;
3. completed the survey only one time, and
4. were truthful in reporting their satisfaction levels.

Limitations

Limitations of the study were that:

1. It represents only one account managed by Company X.
2. It is only representative of a three month period.
3. It does not measure any certain treatment. It measures overall customer satisfaction;

4. Information relating to this study is proprietary information.
5. Customer participation was voluntary.
6. Some participants completed a post survey, but did not complete a pre survey.
7. Some participants completed the survey more than one time.

Definition of Terms

1. Account - A location managed by the contract management company.
2. Associate - Also known as employees.
3. Auxiliary - Volunteer organization.
4. Capitation - A set amount allotted by a health plan or insurance plan to cover a particular person's medical care during a year.
5. Client - The client is both the organization for whom the contractor provides the service and the individuals within the organization for whom services are provided. In a health care setting, the client is usually the hospital administrator or assistant administrator.
6. Customer - Anyone who uses the product or service which in this case is the hospital cafeteria.
7. Health Maintenance Organization (HMO) - This type of health-care plan covers all needed medical services for a prepaid fee and minimized co-payments.
8. Managed Care Organization (MCO) - This type of organization seeks to control medical costs by preventing excessive use of medical tests, hospitalization, visits to specialists, and other services.

9. Management Company - A for-profit business that contracts with and may serve as an agent for a health care facility in performing services set forth in the management contract.

10. Management Contract - A formal written agreement that specifies the responsibilities and obligations of both the health care facility and the management company.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The health care industry is facing the most extensive price controls in its history. Hospital administrators are finding that they must reduce expenditures and increase productivity to achieve financial success in the health care industry. Hospital administrators are facing pressure to operate within restraints imposed by cost minimization and cost containment programs. The health care industry has found itself looking for new and different ways to survive financially in today's competitive marketplace. As a result, many hospitals are restructuring, reshaping, reforming and contracting out support services departments traditionally found in the health care setting. Food service is one of the departments being contracted out to management companies.

Although the use of contract services is not new, a trend in health care facilities is toward the consideration and utilization of contract management (Zaccarelli and Ninemeier, 1982). The management of ancillary services such as food service, housekeeping, laundry, and maintenance are important for many reasons. Ancillary services require a large amount of the health care facility's budget and are often areas in which health care administrators are not as knowledgeable. It is the assumption that

contract management companies are the experts and that they have the solutions and resources that the health care facility does not have (Zaccarelli and Ninemeier, 1989). Health care administrators realize they may be better off financially to allow a contract management company to manage food service departments.

The health care industry is changing. Over the past few years, managed care organizations (MCOs) have replaced government entities in the regulation of the health care industry and health care reform. Enrollment in MCOs has increased because utilization rates and costs decline for people who have their health care provided through a managed care organization. Laramee (1996) reported that by the year 2005, two thirds of the population will receive health care in a capitated system. Hospital food service departments are most familiar with health maintenance organizations (HMOs), a type of managed care organization. Capitation is a payment system where members pay a specific fee, usually on a monthly basis, for health care services. Capitation is becoming a common method of payment for hospital, home health, and pharmacy customers. The major factor moving the health care industry toward capitation is cost (Laramee, 1996).

Managed care has lowered costs and prompted a decline in hospital utilization. Hospital utilization was 40% less for capitated HMOs than for commercial HMOs and the annual increase in health care decreased to 4% to 6% per year by 1994 from more than 10% per year in 1990 (Robinson and Casalino, 1995). When hospital utilization decreases, food service departments are affected. Decreased hospital utilization affects both the patient food service and the hospital cafeteria. A decreased patient census leads to a decreased number of hospital employees and consequently less cafeteria sales.

According to the National Restaurant Association (NRA), food service sales in health care facilities reached $15.2 billion in 1993, up 3.3 percent. Among hospitals, patient average census declined for all types of hospitals, with the exception of state and local short term general hospitals which increased 0.8 percent. Federal hospital patients were down 3.2 percent; long term patients were down 7.0 percent; and voluntary ad proprietary patients were down 2.7 percent. The number of employees was up in all but long term hospitals which was down 5.6 percent. The number of employees in federal hospitals was up 4.4 percent; state and local hospitals were up 5.2 percent; and voluntary and proprietary hospital employees were up 0.8 percent. Out-patients increased 6.0 percent for state and local short term and 5.1 percent for voluntary and proprietary hospitals (NRA, 1995).

Customers must be identified by the organization in order to satisfy them. Once the customers are defined, management can then begin to identify the customers' expectations and levels of satisfaction. This review of literature will review management methods and theories focusing on customer definition, customer expectations, and customer satisfaction/dissatisfaction. It will conclude with a review of contract management services and a summary of the literature as it relates to contract management services.

The Deming Management Method

The Deming Management Method is named for Dr. W.E. Deming, who is recognized internationally for his work on quality control and productivity which originated during World War II (Tribus, 1984). Deming's theory is based on

management principles identified as "fourteen points," "seven deadly diseases," and "obstacles" with a major focus relating to the "customer" (Walton, 1986). In the book, The Deming Management Method, Walton outlined Deming's methods. Deming wrote, "The fourteen points are the basis for transformation of American industry. It will not suffice merely to solve problems, big or little. Adoption and action on the fourteen points are a signal that the management intend to stay in business and aim to protect investors and jobs" (Deming, 1982, p. 23). . The fourteen points can be applied to any organization regardless of its' size. The following is a listing of the fourteen points:

1. Create constancy of purpose for improvement of product and service.
2. Adopt the new philosophy.
3. Cease dependence on mass inspection.
4. End the practice of awarding business on price tag alone.
5. Improve constantly and forever the system of production and service.
6. Institute training and retraining.
7. Institute leadership.
8. Drive out fear.
9. Break down barriers between staff areas.
10. Eliminate slogans, exhortations, and targets for the workforce.
11. Eliminate numerical quotas.
12. Remove barriers to pride of workmanship.
13. Institute a vigorous program of education and retraining.
14. Take action to accomplish the transformation.

Phillips, Chang, and Buzzel (1983) reported that companies have recognized the strategic benefits of quality. The increasing awareness of quality has prompted many large companies to create quality measurement programs that attempt to relate product and service attributes to customer evaluations of quality (Zeithaml, Parasuraman, and Berry 1990). Healthcare and food service industries are among such companies evaluating customer service, satisfaction, and dissatisfaction.

Juran (1988) defined quality as "fitness to use" and implies that there are two dimensions. The first is product performance which provides satisfaction to the consumer and the second is a deficiency which produces dissatisfaction. This theory indicates that a manager must identify the performance and deficiency elements of any given product.

Wright (1992) investigated the effects of a quality improvement workshop on patient satisfaction. Swan and Trawick (1981) used a disconfirmation model in a restaurant setting focusing on the food and on the customers' intention to repatronize the restaurant because of satisfaction. Oulett and Norback (1993) applied a technique identifying the elements of a salad bar that create satisfaction or dissatisfaction. Bolton and Drew (1991) applied the constructs of customer satisfaction, perceived service quality, and service value in relation to residential customers' perceptions of service performance, service quality, and service value for local telephone service.

Wright's master's thesis (1992) examined the effects of a quality improvement workshop on customer dissatisfaction at a rural hospital in Virginia. The workshop was based on W.E. Deming's management methods and focused on customer complaints relating to hospital services. One known patient complaint represented six to ten serious, unknown incidents of dissatisfaction (Peterson, 1988). Wright's research focused on the nursing department in a health care setting, but can also apply to a food service department and a retail cafeteria within a health care setting. According to Wright, a hospital's survival can depend on its employees' ability to change to meet the customers' expectations. Such expectations include quality care at the best price. Long-term survival and prosperity cannot be achieved without continuous pursuit of excellence by

the entire organization. Wright reviewed Deming's theory that the entire organization must adapt to a philosophy, mission, and objectives to meet the customers' expectations of quality. Furthermore, quality begins with giving customers what they want, when they want it, and how they want it (Joiner and Scholtes, 1986).

Definition of the Customer

Juran (1992) explains a customer can be external or internal and is anyone affected by the product or service. External customers include those who purchase products and utilize the services while internal customers may also be impacted by the product or service, but are also members of the company providing the product or service.

> External customers are impacted by the product but are not members of the company that produces the product. External customers include clients who buy the product, government regulatory bodies, and the public (which may be impacted due to unsafe products or damage to the environment).
>
> Internal customers are impacted by the product, and are also members of the company that produces the product. They are often called "customers" despite the fact that they are not customers in the dictionary sense, that is they are not clients.

For a health care facility, the customers include, but are not limited to patients, family, physicians, employees, visitors, and others. This includes not only patients

deciding where they go for health care, but also where hospital employees and visitors choose to purchase their meals.

In his book, Principle Centered Leadership, Stephen R. Covey (1990) defines an expectation as what a person wants out of a situation. Bader (1988) states that expectations about health care become the standards people use consciously or unconsciously, to evaluate their care. Therefore, it is important for the institution to be knowledgeable about customer expectations.

Listening plays an important role in understanding customer expectations and knowing how to satisfy them. Covey (1990) explains the statement "Seek first to understand" in his book, The Seven Habits of Highly Effective People. Covey uses the term "empathic listening" as he explains listening with an intention to understand rather than active or reflective listening, which involve mimicking what is being said. Empathic listening involves listening for meaning by listening with not only the ears, but also by utilizing sight and emotion. Company X has incorporated Covey's "Seven Habits" into all new managers' training and managers are expected to use their empowerment to consistently exceed the expectations of the customers (Company X, Operating Standards Manual, p. 1), Company X recognizes that listening to the customers can tell management how to improve the food and service quality. Company X's CEO's statement "Listen to your customers" relates to Covey's discussion on empathic listening. (Company X, Customer Satisfaction Measurement). This philosophy indicates that meeting and exceeding customer expectations is expected from Company X managers. The values of Company X reflect a commitment to customer service and a commitment to improve the quality of food and service as perceived by the customer.

Definition of Quality

Juran (1992) discusses the term "quality" by referring to two dictionary definitions. One definition refers to product features and explains that the better the product features, the higher the quality of the product. Freedom from deficiencies is the second definition Juran uses to describe "quality". He states that in the eyes of the customers, quality increases when fewer deficiencies are present.

Dr. W. Edwards Deming's theory of Quality Leadership has prompted companies to listen to customers more effectively to make certain their products and services are useful and valuable. Companies have come to realize that without customers, they have no business (Scholtes, 1988). This new style of management defined as Total Quality Leadership (TQL) shifts the emphasis from profits to quality. Scholtes explains that by learning how to monitor, control, and continuously improve production systems, organizations are better able to provide customers with what the customers want. The Deming Chain Reaction explains that by improving processes a company can ultimately exceed the expectations of the customers. Deming explains that when quality is increased by improving processes, productivity improves. Better productivity lowers unit costs, which lowers prices. Research has demonstrated the strategic benefits of quality in contribution to market share and return on investment (Anderson and Zeithaml, 1984). Customers respond favorably to better quality and lower prices.

A study by Parasuraman, Zeithaml, and Berry (1988) developed the SERVQUAL instrument for assessing customer perceptions of service quality in service and retailing

organizations. The instrument has a variety of potential applications including assisting service and retail organizations in assessing consumer expectations about perceptions of service quality. It can also identify areas requiring managerial attention and action to improve service quality.

Bolton and Drew (1991) explored how customers integrate their perceptions of a service to form an overall evaluation of that service. Their research was different from prior research in that it developed a multistage model of the determinants of perceived service quality and service value. Additionally, their research described how customers' expectations and perceptions affect their satisfaction with a service, which then affects their assessment of service quality and value.

Bojanic and Rosen (1994) investigated the association between service quality as perceived by consumers and its service determinants using the SERVQUAL instrument. They used SERVQUAL in a restaurant setting to assess customer perceptions of quality. The researchers recommended that the restaurant implement efforts to improve reliability and assurance characteristics by implementing total quality management strategies.

Christensen (1995) explains that re-engineering has been adopted as a way of reducing costs and the goal of re-engineering in a hospital is to enhance the chances for survival under capitation by reducing the cost of providing quality care. Christensen focused on the importance of customers' needs having a variety of variable dimensions such as those identified in the SERVQUAL instrument. He identified the implementation of a standardized non-select patient menu as an example of re-engineering and reported this action led to a reduction of five full time food service employees as well as providing cost savings in food supplies and menu production.

Need for additional research

Berry (1986, p. 4) expressed the importance of scientific journals expanding coverage on the subject of "services retailing". Furthermore, Berry emphasized that an expanded coverage on services retailing would clarify the differences between services companies and retailing companies, and it would encourage more academic research on services retailing.

Other researchers have also written about the need for more research relating to service quality. Prior to the development of the SERVQUAL instrument, Parasuraan, Zeithaml, and Berry (1988) reported the need for additional research on service quality. They reviewed the studies relating to service quality, developed a model for service quality, and encouraged future research on the subject. Their research found three underlying ideas: 1) Service quality is more difficult for the consumer to evaluate than goods quality; 2) Service quality perceptions result from a comparison of consumer expectations with actual service performance; 3) Quality evaluations are not made solely on the outcome of a service, but also involve the evaluations of the process of service delivery (1985).

Customer Satisfaction & Dissatisfaction

Quality improvement is ongoing in the food service industry. This is referred to as continuous quality improvement (CQI). Food service operators are continuously looking for ways to improve customer satisfaction whether it be developing new recipes,

offering healthful selections, re-decorating a dining area, offering menu specials, or improving the value as perceived by the customer.

Because satisfaction and quality are defined in terms of the customers, all satisfaction and quality improvement projects must start by defining what customers want. This can begin once the customers have been identified. The process that determines satisfaction and dissatisfaction begins with the expectations that customers have when making a purchasing decision. When the customer uses the product and experiences how well it performs, either the expectations are exceeded, leading to a high level of satisfaction; or the expectations are not met and result in dissatisfaction (Oliver, 1981).

Swan (1977) investigated whether a disconfirmation model could explain satisfaction in a retail setting using a before-and-after design. Research findings indicated that satisfaction was related to the disconfirmation of expectations among shoppers making an initial visit to a newly opened department store. In 1981, Swan and Trawick reported the study of satisfaction in a restaurant setting focusing on food and on customer intentions to repatronize the restaurant because of satisfaction. The research involved a two part survey in which the first part asked restaurant customers to rate what they expected the food and service to be like on seven attributes. The first part of the survey was completed by customers immediately after their order was taken. After completing the main course, they completed the second part of the survey. The second part evaluated the customer's perception of the food and service on the same seven attributes including satisfaction and intentions. Swan's findings indicated that the satisfaction process starts with the consumers' expectations of how well the retail

operation will perform on attributes of interest to the customer. As perceived performance exceeds customer expectations, satisfaction increases. Satisfaction is determined by disconfirmation, but expectation and the perception of disconfirmation are also related to satisfaction. The chances of the customer returning to the establishment increase as the level of satisfaction increases. Furthermore, inferred disconfirmation (the customer's post rating minus the pre rating) and expectations were positively related to intentions.

Kano, Seraku, Takahashi, and Tsuji (1984) suggest that satisfaction and dissatisfaction are related to consumer perceptions and derived from a consumer's feelings about certain quality elements when they are present and when they are missing. The following rules were established to classify quality elements. An element that provides satisfaction when present and that is not missed when absent is called an "attractive element." Attractive elements can serve as factors of competitive advantage. "One dimensional elements" produce satisfaction when present and dissatisfaction when absent. "Must-be elements" produce dissatisfaction when absent but are unnoticed when present. Consumers expect must-be elements to be part of the product offered. Once present, customers will not think about them, but their absence creates dissatisfaction. For example, consumers expect coffee to be served hot. They will not praise a restaurant for its hot coffee, but will verbalize their dissatisfaction if the coffee is served cold. Must-be elements must be fulfilled before all others, otherwise the consumer will not purchase the product. After the consumer perceives that a must-be element is fulfilled, an increase in the element will not increase consumer satisfaction. "Indifferent elements" do not matter to the consumer. No efforts should be given to these elements unless they

support other important elements. Indifferent elements may even be removed, thereby reducing the cost of the product or service. For example, customers may not care if there is a centerpiece on their table, but the restaurant manager may decide to have centerpieces to enhance the dining area. "Reverse elements" induce dissatisfaction when present and satisfaction when absent. Identifying them is important so that they can be removed from the product. "Skeptical" elements occur when answers are not consistent. For example, when a consumer answers that he or she is satisfied with a product when an element is both present and absent.

Kano et al. (1984) further explain that perceptions may change over time. To classify quality elements, Kano et al. (1984) developed a questionnaire format consisting of paired questions asking consumers how they feel when an element is present in comparison to how they feel when that same element is not present.

Oullet and Norback (1993) applied Kano's model to a food service setting by classifying quality elements of a salad bar. They began by identifying quality elements that mattered to the consumers and then determined which elements provided satisfaction and those that provided dissatisfaction. The key elements included on the paired question questionnaire were derived from customer comments. The key elements were related to food variety, freshness, easy to reach, labeling of salad dressings, and food spills. In summary, the study first identified what the consumers classified as important in relation to the salad bar. Second, of the elements that mattered to consumers it identified those that provided satisfaction and those that provided dissatisfaction. Ultimately, if the must-be elements are not fulfilled, customers will not use the salad bar or will not return to the

food service business. This technique can be used in evaluating customer perceptions of other products and services.

Almanza, Jaffe, and Lin (1994) measured customer satisfaction and dissatisfaction in a college university food service setting using a service attribute matrix. Their research found the most important attributes to the customers were quality of food, convenient location, cleanliness, and prices. Furthermore, competitive strengths and vulnerabilities, based on the service attribute matrix of Albrecht and Bradford, were found for all meals.

Customer Service Applications

A remodeling project in the cafeteria at Poudre Valley Hospital in Fort Collins, Colorado was part of a hospital wide project. It included the addition of a new color scheme, a scramble style serving area including a full-service bakery, a pizza station, and a grill area. Traffic flow was redesigned to eliminate cross-traffic and updated equipment was added to increase the quality and efficiency of the service. Reports have shown customers are pleased with the new facility, the variety, and the speed of service which allows employees to get through the lines quickly since they only have thirty minute lunch breaks. This is important since most employees only have thirty minute meal breaks (Bertagnoli, 1995).

The traditional cafeterias are also demonstrating efforts to improve customer satisfaction and retention. Old Country Buffet has implemented a program teaching their employees to be more of aware of the customers' needs. A Luby's cafeteria has

implemented a nutrition education program where customers can learn which menu items are low in fat, cholesterol, and sodium. Picadilly Cafeterias reported increased revenues due to extensive remodeling in 1994. Furr's Cafeterias is responding to their customers' needs by providing items a la carte and an all-you-can-eat meal along with plans for remodeling (Restaurants & Institutions, July, 1995).

Review of Contract Managed Food Service

Contract food service management is the business of professional management companies. Although the idea of contract management is not new, the incidence is increasing (Zaccarelli, 1982, p. 25). Contract management companies have become a significant provider in the food service industry and continue to be considered as health care facilities are faced with cost minimization and cost containment programs. Health care facilities often find that utilizing a contract management company provides experts who are knowledgeable to manage ancillary service departments and also provides the management service in a way that it costs the facility less than if the facility manages the department itself.

Advantages of using a food service management company are realistic salary levels for managers, tighter control of costs, fewer costly benefit packages, application of professional management techniques and modern technology, and assistance in report preparation (LeBruto and Farsad, 1993). Stronger internal controls, national purchasing programs, continuing education opportunities for managers, and national networking systems are additional advantages. Employee relations, energy conservation, recycling

programs, bed tracking systems, and food production systems are examples of support systems that management companies can provide the health care facilities. Additionally, management companies offer standardized unit operating systems which allow the health care facilities to offer a quality food service department in a more cost effective manner than if they tried to manage the department themselves.

Health care food service is not limited to hospitals. Extended care facilities, nursing homes, skilled nursing units, retirement homes, and other locations are all included in the health care food service industry and are also utilizing contract management services. Health care food service is not limited to patient food service and employee cafeteria, but also extends services to public dining rooms, physician dining rooms, catering services, and vending (Warner, 1994). Each hospital food service department's management structure is designed to meet the needs of that facility. A department is commonly comprised of three areas: food production, patient services, and retail services.

Company X is among the four leading national corporations in contract management. Management contract companies include national, midsize, and regional companies. National contractors' annual gross sales range from $873 million to $4 billion. Other contract management companies are classified as midsize or regional depending on annual gross sales. Food service is a $267 billion industry and $13 billion of that market is operated by professional management companies (Warner, 1994).

Conclusion

Clearly, customer satisfaction is important to service oriented businesses which includes hospital food service. Hospital utilization continues to decrease and is largely due to the managed care organizations governing the health care industry and the capitation system brought about to decrease the cost of health care.

As the health care industry continues to transform, contract management companies are continuously looking for ways to improve the quality of service that they provide. One such way is by providing a continuous quality improvement process in the hospital cafeteria. This includes customer satisfaction surveys.

To provide a quality service, many companies, including Company X (involved in this study) have created quality measurement programs that attempt to relate service attributes to customer satisfaction levels. Deming (1992) discussed the importance of management taking action to create an environment that provides a quality type of service. Before such systems can be implemented however, the customer must be identified. In the case of this study, the customers are the hospital cafeteria customers. Once the customers are identified, efforts can be implemented to determine what is important to the customers and what it takes to increase their satisfaction levels. Covey (1990) discussed the importance of listening to the customers. Listening provides management the input from customers that is required to improve the levels of satisfaction. Listening is also part of the continuous quality improvement process. Responding to customers needs is the also part of a system that is ongoing providing a continuous feedback loop from customers to management. Successful service oriented

companies recognize the importance of such a system, because they recognize that without the customers, there would be no business.

CHAPTER III

METHODOLOGY AND RESEARCH DESIGN

Introduction

The purpose of this chapter is to describe the methodology involved in conducting this study. This chapter is divided into five main areas: population and sample, instruments, procedures, design, and analysis. The population and sample area describes the participants in the study. The instrument area describes the composition and creation of the research instrument. The procedure section discusses chronologically the methods used by the researcher to gather the data. The design area discusses the type of research design used in the study as well as the independent and dependent variables. The statistical procedures used to test each research hypothesis is also included in the design section. The analysis section describes the analytical procedures used by the researcher.

Population and Sample

Cafeteria Customers

Based on Sudman's (1976) suggested guidelines that a total sample size of 200 to 500 for regional or special studies, when few or no subgroups are to be analyzed, 650 surveys were distributed.

Hospital A is a 425 bed hospital. The target population was Hospital A's cafeteria customers. In order to generalize the target population (Warde, 1990), the survey population consisted of customers patronizing the cafeteria during all meals served over a three day period. Approximately 3000 full time employees work at the facility. The 212 seat cafeteria serves approximately 1500 customers per day. The average ticket sale is less than three dollars per person. The cafeteria is open to employees and visitors. Prior to the management transition, visitors were discouraged from dining in the cafeteria during peak periods. Signs outside the cafeteria listed the times that visitors were welcome in the cafeteria. Instead, visitors were encouraged to dine in the food court located across the hall from the cafeteria which offered higher priced items than menu items in the cafeteria. When the food court was closed for remodeling on September 1, 1996, the visitors had no other alternative but to dine in the cafeteria. Since the closing of the food court, the cafeteria is open 22 hours each day from 6:00 a.m. until 4:00 a.m. serving breakfast, lunch, dinner, and the midnight meal called "night break". Until September 1, the cafeteria closed at 8:00 p.m. and the food court served the employees and visitors in the hospital throughout the night. Until September 1, the food court, managed by company Y, provided the night break meal and was open 22 hours per day.

Instruments

Pre-Test

Baseline Data - Survey A & Retail Preference Survey

Two surveys provided baseline data for this research. The retail preference survey (Appendix A) was developed and administered by Company X's general manager at Hospital A. The second survey, referred to as Survey A (Appendix B), is proprietary information copyrighted by Company X. Survey A is used on a regular basis by the company to measure customer satisfaction in food service accounts. The two aforementioned surveys comprise the portion of this research referred to as baseline data or the pre-test. Questions were taken from these two surveys to create the research instrument, the post-test. The surveys constituting the pre-test contained information pertinent to the management company and the development of this research and were therefore integrated into the research instrument. The instrument developed for this research is also referred to as the post-test.

The retail preference survey was administered to cafeteria customers by Company X approximately one week prior to the start date of the contract. It was administered over a two day period including a Saturday during the third week of May 1996. The purpose of this survey was to gather information related to food preferences, likes, and dislikes. This information was necessary for the management company to develop new cafeteria menus. The information was also helpful for selecting the types of food and branded

concepts to be offered in the food court which was scheduled to undergo remodeling beginning September, 1996.

The management company's Survey A was administered by Company X managers during the first week of the contract period, the week of June 1, 1996. This survey was important for gathering baseline data necessary for Company X to monitor customer satisfaction. Survey A is part of a formal survey process developed by Company X. The goals of this survey process focus on establishing uniformity in all Company X accounts in the measurement of customer satisfaction. Company X recommends uniformity in the survey form, the questions that are asked, the times the surveys are administered, and the analysis of the survey data. This process is also intended to provide a data base for ongoing monitoring of satisfaction. This data base is important not only at the unit level, but also at the district, area, and national levels of management as efforts are concentrated on tracking customer satisfaction levels. Additionally, the survey process is intended to improve the company's formal feedback systems. Such feedback systems can be improved by managers utilizing the survey results to identify what the customers claim management is doing well, what needs to be done better, and ultimately what can be done to improve the customers' satisfaction levels (Company X Health Care Food & Nutrition Services, Survey A Customer Satisfaction Measurement).

Post Test

Research Instrument - Customer Satisfaction Survey

The instrument developed for this research was a four page customer satisfaction questionnaire (Appendix C). It was developed using Company X's Survey A and retail preference surveys. The quality elements comprising the two surveys were critical components of the questionnaire developed for this research. Two of Dr. W.E. Deming's fourteen points were also considered: 1) create constancy of purpose for improvement of product and service and 2) improve constantly and forever the system of production and service (Deming, 1982).

Input was obtained from members of Company X's management team at both the district and account level. This management group included the following: district manager, general manager, retail manager, assistant retail manager, production manager, executive chef, and dietitians. Managers from the environmental services and linen services departments, which are also managed by Company X at Hospital A, also provided input. Additional input was obtained from the hospital administration department.

The research instrument was four pages in length. The first page was the cover page stating the name of the hospital, the title of the survey, and the sponsoring department. The questionnaire was designed in three parts. The first part related to customer satisfaction. This part derived from Company X's Survey A. The quality elements were defined as food quality, value, service, and sanitation. Each of the four categories were rated on a 5 point likert scale with the number 1 signifying very good and

5 signifying very poor. There were five questions related to food quality, three questions related to value, five questions related to service and four questions related to sanitation and cleanliness.

The second part of the survey dealt with questions relating to the customers' food preferences and the times and frequency they dined in the cafeteria. Four questions were open-ended allowing for comments and responses. This part of the survey derived from Company X's retail preference survey.

The third part of the survey asked six demographic questions including gender, age, shift, ethnicity, education, and occupation. Demographic questions were not included on the pre-test surveys but were added to the research instrument. Space at the bottom of the survey was allocated for comments. Customers who returned a completed survey were given a free cookie or cup of coffee.

Ary, Jacobs, and Razavieh (1972) indicated pre-study planning may increase the percentage of returns. The researcher should utilize a questionnaire which deals with a significant topic for the population or sample, and the instrument should be constructed and presented in a manner which reflects quality and logical arrangement. In addition, the questionnaire should take as little time as possible to complete, be accompanied by a signed cover letter of explanation, and should clearly indicate that all responses are confidential. These guidelines were considered in the development of the research instrument. The second page of the survey included an explanation of the survey and a statement regarding confidentiality.

Procedures

Pilot Study

According to Best (1981), it is difficult to determine the validity and reliability of data gathering instruments or procedures such as the use of the questionnaire, in which the responses are more qualitative than quantitative, yielding data that are not ordinarily measurable. One can speculate about ways to improve the validity and reliability of these procedures, but precise determination of the degree to which they are achieved is elusive. However, by carefully designing the structure and content of the questionnaire using the critical judgment of experts in the field, the validity and reliability will be enhanced. Such experts will aid in selecting questions that are essential to the purpose of the study and to ensure that the information being sought is significant to the study. The validity of the questionnaire was evaluated by the researcher's advisory committee, Company X managers, and hospital administration.

After approval from the Institutional Review Board at Oklahoma State University, (Appendix D) the researcher conducted a pilot study (Appendix E) during late August, 1996. This was done to aid the researcher in refining the questionnaire and data analysis prior to the implementation of the final questionnaire. Isaac and Michael (1981) identified the advantages of conducting a pilot study as: providing the researcher with unforeseen ideas, approaches, and clues; reducing the number of treatment errors; potentially saving the researchers time and money on a project that will yield nothing; getting feedback from research subjects and others which lead to improvements, and permitting preliminary testing of the hypotheses.

Subjects for the pilot study included Company X hourly and management associates and members of the hospital auxiliary. Company X associates participating in the pilot study represented food and nutrition services, linen services, and environmental services departments. The pilot study questionnaires were administered to the subjects at their respective departmental weekly staff meeting. The instrument was personally handed to the subjects along with a verbal explanation of the research project. Pencils were provided for subjects to complete the survey. Participants were given a free cookie or a free cup of coffee when they returned the completed survey following the staff meeting. A computer generated sign thanking the subjects for their participation was displayed next to the tray of cookies and coffee.

Pilot study respondents indicated the need for the researcher to divide the service question, "the helpfulness and friendliness of our personnel?" into two separate questions since helpfulness and friendliness were two separate characteristics. This resulted in the compound question being broken into two separate questions. The question, "the helpfulness and friendliness of our management?" was recognized by the pilot study respondents as being too similar to the question "the helpfulness and friendliness of our personnel?" and this concern led to the development of a new question asking subjects to rate the visibility of management during peak periods. Pilot study participants recommended the statement asking subjects to rate the value of the meal be changed to the perceived value of the meal. This change was also made.

An overall concern with the first page of the survey was the sequence of the questions. The sequence of the questions was revised so that the questions were more sequential with the order that the elements occurred in the cafeteria. For example, the

tray return area is among the last elements customers see when leaving the cafeteria. Therefore, the statement asking about the cleanliness of the tray return area became the last question on this part of the survey.

The second page of the survey consisted of the questions relating to food and retail preferences. The questions on this page originated from the retail preference survey administered in May, 1996. Pilot study respondents made recommendations for changes on this page. They recommended that "none of the above" be added to the question asking about areas of nutritional interest. Respondents expressed a need for more choices on the question relating to frequency thus a fourth choice reading "1-3 times per month" was added. Respondents also expressed a concern regarding employees working third shift (usually 11:00 p.m. - 7:00 a.m.). There was not an accurate choice for them to reply on the question asking what time of day they usually eat in the cafeteria. The response "night break" was added.

The pilot study also led to the addition of two new questions. One question asked respondents if they would enjoy specialty theme days and the second asked if price influenced the buying of certain items. The pilot study also led to the researcher moving the question asking for beverage suggestions to the last section of the page along with the two other questions asking for respondents' comments. Since the concepts for the food court had already been selected at the time of the pilot study, it was determined that the question asking respondents which types of fast food they preferred should not be on the research questionnaire.

Pilot study respondents indicated the need for more choices on the demographic question related to ethnicity. This resulted in the addition of "Asian" as a choice for

respondents to select on the question related to ethnicity. Respondents also indicated the need for more choices on the demographic question relating to education level. This resulted in the addition of the following choices: associate degree, bachelors degree, masters degree, and a choice titled "post masters". Additionally, respondents indicated a need for more spacing to be placed between the questions on the demographic question. This resulted in the decision to print the survey on legal size, 8 ½" x 14", paper rather than the 8 ½" x 11" used for the pilot study. The larger paper also created space for the heading "Demographic Information".

Data Collection

Ary, Jacobs, and Razavieh (1972) indicated pre-study planning may increase the percentage of returns and the researcher should utilize a research instrument which deals with a significant topic for the population or sample, and the instrument should be constructed and presented in a manner which reflects quality and logical arrangement. In addition, the questionnaire should take as little time as possible to complete. Prior to this study, efforts to enhance the response rates included an announcement of the survey at a hospital wide department managers meeting. Additionally, on the days the survey was administered, signs and posters were posted throughout the cafeteria encouraging participation, explaining the process, and thanking customers for their participation. Cafeteria cashiers also reminded customers of the survey when they were paying for their meals.

Company X recommends consistency in survey distribution. Surveys should be distributed a minimum of two days including all meals and one weekend day. Members

of the management team should be involved in the process and the survey should be distributed throughout the day. Furthermore, Company X recommends that the survey be publicized, be clearly explained, and that pencils be provided (Company X, Survey A Customer Satisfaction Measurement Manual)

The instrument was distributed during breakfast, lunch, dinner, and the night break (12:00 a.m. - 4:00 a.m.) over a two day period, including a Saturday. The surveys were administered by the researcher during breakfast, lunch, and dinner on day one. The researcher greeted customers as they entered the cafeteria, explained the survey, and asked customers to complete and return a survey. The researcher was available to answer customers' questions and discuss any concerns with customers. Pencils were provided for customers to complete the surveys. Cafeteria supervisors were responsible for distributing the surveys during the late night and week-end meals and during the times of day when the cafeteria serving line was closed (9:00 a.m. - 10:30 a.m. and 2:00 p.m. - 4:30 p.m.). During these times, the surveys were either administered by the supervisor on duty or self-administered and placed on display tables located at the cafeteria entrance and next to the cash registers. Pencils were provided. Computer generated colored signs explaining the survey were displayed next to the surveys. Additional signs were posted throughout the cafeteria reminding customers to complete the survey.

Prior to the study, several steps were taken to enhance response rates. Hospital department managers were informed of the study at a department managers meeting and were encouraged to inform their departmental employees of the study. On the days that the surveys were distributed to cafeteria customers, signs and posters were posted

throughout the cafeteria explaining the study, encouraging participation, and reminding customers to return the surveys and receive a free cookie or free cup of coffee.

Treatment

A new three week cycle menu was implemented in June, 1996. The menu included three entrees, one hot sandwich, and two soups each day

The self-serve deli bar was removed from the center of the serving area and was replaced with a gourmet style deli sandwich prepared to order in front of the customer by cafeteria associates. Fresh baked cookies and loaves of bread were packaged and sold daily from a display area. The coffee and frozen yogurt were converted to different brands.

New cafeteria signage, was incorporated into the cafeteria as part of the efforts to improve aesthetics and provide nutritional analysis of menu items. The signage included hanging and free standing signs identifying the different stations in the cafeteria (salad bar, entrees, deli, desserts, etc.) and nutrition information. The signage computer software interacts with Company X's food production system software to provide nutritional analysis of any recipe that is in the Company X software data base.

The general appearance of the cafeteria was altered with the implementation of fabric skirting around the serving line, bakers' racks to display silverware, trays, and napkins, new serving pans and utensils, and the addition of wicker baskets and decorative items.

The salad bar was relocated to a position against the wall making more room for the increased customer traffic anticipated when the food court was closed. This change made the salad bar one-sided whereas it had previously allowed access for two sides.

Research Design

The research for this study was basically descriptive. According to Gay (1976),

> Descriptive research involves collecting data in order to test hypotheses or answer questions concerning the current status of the subject of the study. A descriptive study determines and reports the way things are. One common type of descriptive research involves assessing attitudes or opinions. Descriptive data are typically collected through a questionnaire survey, an interview, or observation (p. 10).

The survey method of descriptive research was used to determine if there were significant differences between the cafeteria customer satisfaction levels before and after the first three months of the contract period. The survey method was selected because it obtains data from a relatively large number of cases at a particular time. According to Best (1977, p. 116), "The survey is not concerned with characteristics of individuals, but it is concerned with the statistical results when the data is abstracted from the population surveyed."

Data Analysis

The descriptive research involved the collection of data by self-reported surveys to test hypotheses concerning customer satisfaction levels and customer retail

preferences. Cohen, Sherrod, and Clark (1988) tested the power of a statistical test of a null hypothesis, which is the probability that it will lead to the rejection of the null hypothesis. The power of a statistical test depends on three parameters: the significance criterion, the reliability of the sample results, and the effect size or the degree to which the phenomenon or differences exist.

Chi square analysis was performed on variables from the pre-test and post-test surveys. Survey results were compared using Survey A data in comparison to the food quality, value, service, and sanitation & cleanliness questions which were on the first page of the Customer Satisfaction survey. Retail preference data were compared to the questions on page two of the Customer Satisfaction survey. The significance level was set at $p \leq 0.05$.

Data were coded and tabulated on the software program PC File III. Statistical analysis was performed using the Statistical Analysis System (SAS) program. Results and discussion of these results follow in Chapters four and five.

CHAPTER IV

RESULTS

Introduction

The purpose of this study was to identify and compare the levels of cafeteria customer satisfaction at the time Company X assumed management of the food service department at Hospital A to the levels of cafeteria customer satisfaction approximately three months after the start date of the contract. This research compared the pre-test survey results (Survey A and Retail Preference survey) to the post-test results. The instrument developed for this research, the customer satisfaction survey, is referred to as the post-test. Survey A is a copyrighted survey by the management company involved in this study.

This chapter was developed to present the findings of the research. The findings were divided into six major parts in order to provide the appropriate insight for this study. The specific areas addressed were: response rates, respondent demographics, meal comparisons, hypotheses number one, and hypotheses number two. Respondents' comments are also included.

Response Rates

One-hundred-thirty pilot test questionnaires were distributed and 105 were returned (81% response rate). Six-hundred-fifty customer satisfaction questionnaires were distributed to cafeteria customers and 434 were returned (67% response rate). Two-hundred retail preference surveys were distributed and 108 were returned (54% response rate). Two-hundred Survey A surveys were distributed and 128 were returned (64% response rate). Table 1 illustrates the response rates from the four surveys.

TABLE 1

FREQUENCY TABLE SUMMARY OF RESPONSE RATES

SURVEY	TOTAL DISTRIBUTED	TOTAL RETURNED	RETURN RATE
Customer Satisfaction	650	434	67%
Pilot	130	105	81%
Retail Preference	200	108	54%
Survey A	200	128	64%

Meal Comparisons

A total of 650 satisfaction surveys were distributed during the 3-day survey. Among the 434 surveys returned (67% response rate), 66 were returned during breakfast, 175 were returned during lunch, 28 during dinner or night break, and 161 were returned during weekend lunch or dinner. Babbie (1986) suggested that a response rate of at least 60% was good, and that a response rate of 70% was very good. The 67% response rate for this study was, therefore, considered acceptable.

Surveys were compared based on the meal during which they were returned. They were analyzed in comparison to the satisfaction scores using the chi square analysis to determine if there was a significant difference when $p \leq 0.05$ (Appendix F). The likert scale was condensed for this data set combining very good (rating of 1 on the scale) with good (rating of 2) ratings and very poor (rating of 5 on the scale) with poor (rating of 4) ratings. The fair category was not combined with any other category for the comparisons.

One question relating to food quality showed a significant difference. None of the questions relating to value yielded a significant difference. Four of the five questions relating to service showed a significant difference and all four of the questions relating to sanitation and cleanliness showed a significant difference.

Food Quality

Data indicated a significant difference on the question relating to the variety of food choices available ($p=0.005$). A comparison of good/very good indicated that a higher percentage of respondents were satisfied with breakfast (49.25%) and dinner/night break (50.00%) than lunch (31.61%) and weekend meals (25.58%). A comparison of poor/very poor ratings indicated a higher percentage were dissatisfied with the variety offered during lunch (33.33%) and weekend meals (34.88%).

A summary of the frequency comparison by meals is demonstrated in Table 2. The table represents the question relating to food quality that showed a significant difference when $p \leq 0.05$.

TABLE 2

MEAL COMPARISON - TABLE OF QUESTIONS YIELDING A SIGNIFICANT DIFFERENCE

Food Quality

FOOD QUALITY	VERY GOOD/ GOOD	FAIR	POOR/ VERY POOR
Variety of food choices available			
Breakfast	49.25%	22.39%	28.36%
Lunch	31.61%	35.06%	33.33%
Dinner/Night Break	50.00%	39.29%	10.71%
Weekend	25.58%	39.53%	34.88%

(n=434)
$p \leq 0.05$

Service

A significant difference (p=0.011) was found on the question relating to the friendliness of cafeteria personnel. The highest percentage of responses were in the good/very good category. Breakfast was 83.58%, lunch was 68.97%, dinner/night break was 67.86%, and week-end meals were 67.94% in the good/very good category. Responses in the fair and poor/very poor category were less.

The speed of cafeteria service question showed a significant difference ($p<0.0005$). Good/very good responses were 67.16% at breakfast, 33.53% at lunch, 53.57% at dinner/night break, and 36.64% on the week-end. Poor/very poor responses were 11.94% at breakfast, 31.21% at lunch, 25.00% at dinner/night break, and 38.93% on the week end.

The professional appearance of cafeteria personnel showed a significant difference ($p<0.0005$). The highest percentage of responses were in the good/very good

category. Breakfast was 76.12%, lunch was 68.97%, dinner/night break was 71.43%, and week end was 46.56%. Poor/very poor responses were breakfast 4.48%, lunch, 3.45%, dinner/night break 3.57, and week end 14.50%.

The question asking about the visibility of management during peak periods showed a significant difference ($p=0.015$) in this comparison. Good/very good responses were 56.06% at breakfast, 44.10% at lunch, 42.86% at dinner, and 31.5% on the week end. Poor/very poor was 22.73% at breakfast, 22.36% at lunch, 10.71% at dinner/night break, and 25.20% on the week end.

A summary of the frequency comparison by meals is demonstrated in Table 3. The table represents the questions relating to service that showed a significant difference when $p \leq 0.05$.

TABLE 3

MEAL COMPARISON - TABLE OF QUESTIONS YIELDING A SIGNIFICANT DIFFERENCE

Service

	VERY GOOD/ GOOD	FAIR	POOR/ VERY POOR
The friendliness of our personnel?			
Breakfast	83.58%	10.45%	5.97%
Lunch	68.97%	25.29%	5.75%
Dinner/Night Break	67.86%	32.14%	0.00%
Weekend	67.94%	19.08%	12.98%
The speed of our service?			
Breakfast	67.16%	20.90%	11.94%
Lunch	33.53%	35.26%	31.21%
Dinner/Night Break	53.57%	21.43%	25.00%
Weekend	36.64%	24.43%	38.93%
The professional appearance of our personnel?			
Breakfast	76.12%	19.40%	4.48%
Lunch	68.97%	27.59%	3.45%
Dinner/Night Break	71.43%	25.00%	3.57%
Weekend	46.56%	38.93%	14.50%
The visibility of management during peak periods?			
Breakfast	56.06%	21.21%	22.73%
Lunch	44.10%	33.54%	22.36%
Dinner/Night Break	42.86%	46.43%	10.71%
Weekend	31.50%	43.31%	25.20%

(n=434)
$p \leq 0.05$

Sanitation and Cleanliness

All four of the questions relating to sanitation and cleanliness showed a significant difference. The general appearance of the dining area was significant at p=0.029. Very good/good responses were 82.09% at breakfast in comparison to 62,07% at lunch. Dinner/night break and weekend showed similar findings at 57.14% and 57.25% respectively. Poor/very poor was 1.49% at breakfast and 3.57% at lunch. Lunch and weekend showed similar findings with lunch at 6.90% and weekend at 6.11%.

The cleanliness of trays, silverware, and plates was significant at p=0.022. Breakfast showed the highest percentage of the four meals with 80.60% of the responses being in the very good/good category. Lunch and dinner/night break showed similar findings with 60.34% and 60.71% respectively. The weekend was 55.73%. Poor/very poor was 4.48% at breakfast, 6.90% at lunch, and 7.63% on the weekend. There were no responses in the poor/very poor category on the surveys returned during dinner/night break.

The cleanliness of the serving and dining area was significant at p=0.003. Breakfast showed the highest percentage of responses in the very good/good category with 83.58% of the responses. Lunch and dinner/night break were consistent with 57.47% and 57.14% respectively. Weekend was 52.67%. The poor/very poor category was lowest at breakfast with 4.48%, and slightly higher at lunch (6.90%), dinner (7.14%), and weekend (6.11%).

The cleanliness of the tray return area was significant at p<0.0005. Once again breakfast showed the highest percentage of responses in the very good/good category

with 71.21%. Lunch was 45.66%, dinner was 32.14%, and weekend was 38.93%. Poor/very poor was higher on the lunch and weekend meals at 19.65% and 18.32% respectively. Breakfast and dinner were less at 10.61% and 10.71% respectively.

Table 4 shows the results of the questions relating to sanitation and cleanliness that showed a level of significance of $p \leq 0.05$ using the chi square analysis.

TABLE 4

MEAL COMPARISON - TABLE OF QUESTIONS
YIELDING A SIGNIFICANT DIFFERENCE

Sanitation and Cleanliness

	VERY GOOD/ GOOD	FAIR	POOR/VERY POOR
The general appearance of the dining area?			
Breakfast	82.09%	16.42%	1.49%
Lunch	62.07%	31.03%	6.90%
Dinner/Night Break	57.14%	39.29%	3.57%
Weekend	57.25%	36.64%	6.11%
The cleanliness of trays, silverware, and plates?			
Breakfast	80.60%	14.93%	4.48%
Lunch	60.34%	32.76%	6.90%
Dinner/Night Break	60.71%	39.76%	0.00%
Weekend	55.73%	36.64%	7.63%
The cleanliness of the serving and dining area?			
Breakfast	83.58%	11.94%	4.48%
Lunch	57.47%	35.63%	6.90%
Dinner/Night Break	57.14%	35.71%	7.14%
Weekend	52.67%	41.22%	6.11%
The cleanliness of the tray return area?			
Breakfast	71.21%	18.18%	10.61%
Lunch	45.66%	34.68%	19.65%
Dinner/Night Break	32.14%	57.14%	10.71%
Weekend	38.93%	42.75%	18.32%

(n=434)
$p \leq 0.05$

Respondent Demographics

Demographic studies of complaint behavior indicate that customers that publicly voice their complaints are more likely to be better educated and have higher household incomes than those that do not publicly complain (Warland, Herrmann, and Willits, 1975). The act of complaining may in fact be beneficial (Technical Assistance Research Programs, 1979). Even if consumers' complaints are not settled to their satisfaction, they are more likely to repurchase and repatronize than if no complaint was made. If complaints are handled satisfactorily, consumers are very likely to repurchase or repatronize the business and may even provide positive word of mouth about the manufacturer or retailer. Research suggests that retailers should encourage consumer feedback on sources of satisfaction and dissatisfaction. Tse (1988) stressed the importance of strategic planning, including the analysis of strengths and weaknesses relative to the retailers' capabilities and resources in order to formulate effective strategies to gain a competitive advantage.

The research instrument elicited customer feedback on six demographic questions (Appendix G) so that market segmentation of customers could be done. These included: gender, age, shift worked, ethnic background, educational level, and position at the hospital.

Gender

There were 434 surveys returned. Twenty-three did not respond to the question asking gender. Three-hundred-eleven (75.7%) were female and 110 (24.3%) were male (Table 5)

TABLE 5

DEMOGRAPHIC DATA OF POST-TEST RESPONDENTS

Gender

GENDER	FREQUENCY	PERCENT
Male	100	24.3%
Female	311	75.7%

(n=411)

Age

Eighteen respondents did not answer the question asking their age. The greatest percentage of respondents were between 26 and 55 years old. This breakdown is shown in Table 6.

TABLE 6

DEMOGRAPHIC DATA OF POST-TEST RESPONDENTS

Age

AGE	FREQUECY	PERCENT
16-25	32	7.7%
26-35	86	20.7%
36-45	139	33.4%
46-55	84	20.2%
55-65	39	9.4%
66 or older	36	8.7%

(n=416)

Shift

The day shift was best represented on the survey which is reflected by the 275 (70.9%) respondents. Seventy-one respondents (18.3%) work evenings (3:00 p.m. - 11:00 p.m.) and 42 (10.8%) work nights (11:00 p.m. - 7:00 a.m.). Schedules vary by department, therefore these times are only used as examples to clarify the shift and may or may not be the actual time employees work. Forty-six respondents did not answer this question. Shift is represented in Table 7.

TABLE 7

DEMOGRAPHIC DATA OF POST-TEST RESPONDENTS

Shift

SHIFT	FREQUENCY	PERCENT
Day	275	70.9%
Evening	71	18.3%
Night	42	10.8%

(n=388)

Ethnic Background

The highest percentage of respondents were caucasian (72.9%). Twenty-five respondents did not answer this question. Table 8 shows the ethnic breakdown of the respondents.

TABLE 8

DEMOGRAPHIC DATA OF POST-TEST RESPONDENTS

Ethnic Background

ETHNIC BACKGROUND	FREQUENCY	PERCENT
Caucasian	298	72.9%
African American	54	13.2%
Hispanic	16	3.9%
Native American	15	3.7%
Other	20	4.9%
Asian	6	1.5%

(n= 409)

Education

Respondents with a bachelors degree were the largest group completing the survey (26.7%) followed by respondents with some college (23.9%). High school was 18.1% followed by vocational-technical training, a master's degree, and post masters respectively. Thirty-seven respondents did not answer this question. Table 9 represents the respondents' levels of education.

TABLE 9

DEMOGRAPHIC DATA OF POST-TEST RESPONDENTS

Level of Education

HIGHEST LEVEL OF EDUCATION	FREQUENCY	PERCENT
Bachelors Degree	106	26.7%
Some College	95	23.9%
High School	72	18.1%
Associate Degree	40	10.1%
Vocational-Technical	32	8.1%
Masters Degree	30	7.6%
Post Masters	22	5.5%

(n=397)

Position

Professional/technical staff were the largest group completing the survey (23.1%). They were closely followed by nursing staff (19.2%), and general support (17.5%). Twenty-three respondents did not answer this question. Table 10 illustrates the respondents by position.

TABLE 10

DEMOGRAPHIC DATA OF POST-TEST RESPONDENTS

Position

POSITION	FREQUENCY	PERCENT
Professional/Technical Staff	95	23.1%
Nursing Staff	79	19.2%
General Support	72	17.5%
Volunteer	44	10.7%
Secretarial Staff	33	8.0%
Visitor	31	7.5%
Administrative	28	6.8%
Medical Staff	21	5.1%
Student	8	1.9%

(n=411)

Chi Square Analyses

Variables compared using chi square analysis included questions that occurred on the pre-test survey and the post-test survey. For example, questions on Survey A that were also on the Customer Satisfaction survey were compared using chi square analysis and questions that were on the retail preference survey that were also on the Customer Satisfaction survey were compared. Data were compared using a significance level set at $p \leq 0.05$. Questions on the post-test that were not able to be compared to the pre-test surveys will be compared using the chi square analysis when the satisfaction survey, post-test, is conducted again in the future.

Ho1

There will be no significant difference in the level of customer satisfaction three months after the management company assumed responsibility of the food service department.

All five of the questions relating to food quality yielded a chi square analysis and three of the five showed a significant difference in satisfaction levels. . Only one question relating to value yielded a chi square analysis and it showed a significant difference. Two of the five questions relating to service were included in the chi square analysis and both indicated a level of significant difference. Three of the four sanitation questions yielded a chi square analysis of which two were found to be significantly different (Appendix H).

Food Quality

Flavor of the Food

Respondents indicated there was a significant difference (p=0.048) on the flavor of the food. Responses decreased slightly from 8.09% to 6.50% in the very good category and decreased from 47.06% to 39.91% in the good category. Respondents rating the flavor of the food as fair remained constant at 40.44% and 40.14% on Survey A and the satisfaction survey respectively. The percentage of respondents rating the flavor as poor increased from 4.41% to 11.6% and the rating of very poor increased from 0% to 1.86%.

The changes in satisfaction levels may be attributed to the new menu cycle and new recipes which are lower in sodium and fat content than the recipes previously used in the food service department.

Appearance of the food

Respondents indicated there was a significant difference (p=0.003) in the appearance of the food. A decrease was seen in the number of respondents rating the appearance of the food as very good or good. Very good decreased from 19.12% to 9.30% and good decreased from 52.21% to 47.44%. An increase occurred in the fair category with 25% increasing to 33.95%. Poor and very poor responses also increased with the number of responses rating the food as poor increasing from 2.94% to 8.14%. Responses in the very poor category increased from 0.74% to 1.16%. Once again, the satisfaction levels may have been affected by the new menu items.

Variety of the food choices

Respondents indicated there was a significant difference (p=.001) in the variety of food choices available. A decrease was seen in the respondents rating the variety as very good from 11.85% to 5.13%. Good decreased from 37.78% to 28.44%. Fair remained constant only decreasing from 34.81% to 34.73%. Poor increased from 12.59% to 24.71% and very poor increased from 2.96% to 6.99%.

The new menu implemented by Company X offered three entrees, one hot sandwich, and two soups per day. The previous menu was a one week cycle menu, but offered up to six entrees per day.

Table 11 shows the results of the chi square analysis comparing the pre-test to the post questions relating to food quality.

TABLE 11

A COMPARISON OF PRE-TEST AND POST-TEST QUESTIONS
YIELDING A SIGNIFICANT DIFFERENCE

Food Quality

FOOD QUALITY	VERYGOOD		GOOD		FAIR		POOR		VERY POOR		VALUE	PROBABILITY
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post		
Flavor	8.09%	6.50%	47.06%	39.91%	40.44%	40.14%	4.41%	11.60%	0.00%	1.86%	9.588	.048
Appearance	19.12%	9.30%	52.21%	47.44%	25.00%	33.95%	2.94%	8.14%	0.74%	1.16%	15.854	0.003
Variety	11.85%	5.13%	37.78%	28.44%	34.81%	34.73%	12.59%	24.71%	2.96%	6.99%	19.489	0.001

flavor (n=567), appearance (n=566), variety (n=564)
$p \leq 0.05$

Value

Perceived value of the meal purchased

Respondents indicated there was a significant difference ($p<0.0005$) of the perceived value of the meal purchased. Respondents rating the perceived value as very good decreased from 16.54% to 9.98% and good decreased from 53.38% to 31.09%. An increase was seen in the number of respondents rating the perceived value as fair. Survey A showed 18.80% while the customer satisfaction survey increased to 42.46%. Responses in the poor category increased from 8.27% to 12.53% and very poor remained constant increasing from only 3.01% to 3.94%. The results of the chi square analyses are shown in Table 12.

The respondents' perceptions of value may have been affected by the new three week cycle menu. Also, cafeteria employees have received an increased level of training related to portion sizes and the customers' perceptions of value could have been affected by cafeteria employees serving more accurately measured portions. New items added to the cafeteria menu are priced depending on the raw food cost, and therefore may be priced higher than entrees that were on the menu before the contract management company assumed responsibility for the department. Existing entree prices were not changed.

TABLE 12

A COMPARISON OF PRE-TEST AND POST-TEST QUESTION
YIELDING A SIGNIFICANT DIFFERENCE

Value

VALUE	VERYGOOD		GOOD		FAIR		POOR		VERY POOR		VALUE	PROBABILITY
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post		
Perceived value of meal	16.54%	9.98%	53.38%	31.09%	18.80%	42.46%	8.27%	12.53%	3.01%	3.94%	34.966	<0.0005

(n=564)
$p \leq 0.05$

Service

Speed of Service

Respondents indicated there was a significant difference ($p<0.0005$) in the speed of service. Responses in the very good category decreased from 23.36% to 12.09% and good decreased from 39.42% to 30.23%. The category of fair responses saw little change with an increase from 27.74% to 28.14%. Both the poor and very poor categories increased. Survey A showed a poor rating of 8.03% which increased to 16.74% on the customer satisfaction survey. Responses in the very poor category increased from 1.46% to 12.79%.

Closing the hospital food court created an increased traffic flow in the cafeteria. This makes it difficult for employees to get through the cafeteria lines, find a seat, and eat their meal during their 30-minute meal breaks. Once the food court re-opens in January, 1996, satisfaction levels should increase in this area.

Professional appearance of personnel

Respondents indicated there was a significant difference ($p<0.0005$) in the professional appearance of the cafeteria personnel. Respondents rating the appearance of the personnel as very good decreased from 27.94% to 14.39%. There was a decrease from 52.94% to 48.03% among those rating the appearance as good, and an increase from 16.91% to 30.39% in the fair category. An increase from 2.21% to 6.50% was seen in the poor category and a slight increase from 0% to 0.70% was seen in the very poor category.

When the management company took over the food service department, some of the food service employees made the decision to leave the department to work in other departments in the hospital or to quit working at the hospital altogether. As new employees were hired to fill vacant positions, they were not required to wear uniforms that matched other department employees. This was because new uniforms were being ordered for the entire department and not expected to be issued to the employees until November, 1996. This could have affected the respondents' ratings of the appearance of the personnel.

The results of the chi square analyses are shown in Table 13.

TABLE 13

A COMPARISON OF PRE-TEST AND POST-TEST QUESTIONS
YIELDING A SIGNIFICANT DIFFERENCE

Service

SERVICE	VERYGOOD		GOOD		FAIR		POOR		VERY POOR		VALUE	PROBABILITY
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post		
Speed of Service	23.36%	12.09%	39.42%	30.23%	27.74%	28.14%	8.03%	16.74%	1.46%	12.79%	30.265	<0.005
Professional Appearance of Staff	27.94%	14.39%	52.94%	48.03%	16.91%	30.39%	2.21%	6.50%	0.00%	0.70%	22.625	<0.005

(n=567)
$p \leq 0.05$

Sanitation and Cleanliness

General appearance of the dining area

Respondents indicated there was a significant difference ($p=0.007$) in the general appearance of the dining room. Responses in the very good category decreased from 28.68% to 16.24% while good remained consistent at 47.79% on Survey A and 47.80% on the satisfaction survey. Responses increased in the fair category from 21.32% to 30.63%. An increase in the poor category from 2.21% to 3.94% occurred and an increase in the very poor from 0% to 1.39% was found.

Cleanliness of the serving and dining area

A significant difference ($p<0.0005$) was found on the customers' responses to the cleanliness of the serving and dining area. Responses decreased from 27.21% to 12.76% in the very good category and from 51.47% to 48.03% in the good category. An increase from 19.85% to 32.95% occurred in the fair category, from 1.47% to 4.87% in the poor category, and from 0% to 1.39% in the very poor category. No significant difference was found on the questions relating to the cleanliness of trays, silverware, and plates.

Increased traffic flow could have caused the difference in sanitation and cleanliness. Increased traffic flow, especially during the lunch rush, could have made it more difficult for cafeteria employees to keep tables cleaned, spills mopped, and counters wiped. The increased number of new employees in the department could have also affected the ratings because the new employees weren't completely trained or had not been working in the department long enough to be as effective as former employees in

keeping the dining area and serving areas clean. The results of the chi square analyses are shown in Table 14.

TABLE 14

A COMPARISON OF PRE-TEST AND POST-TEST QUESTIONS
YIELDING A SIGNIFICANT DIFFERENCE

Sanitation and Cleanliness

SANITATION AND CLEANLINESS	VERYGOOD		GOOD		FAIR		POOR		VERY POOR		VALUE	PROBABILITY
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post		
General appearance of dining room	28.68%	16.24%	47.79%	47.80%	21.32%	30.63%	2.21%	3.94%	0.00%	1.39%	14.245	0.007
Cleanliness of serving and dining areas	27.21%	12.76%	51.47%	48.03%	19.85%	32.95%	1.47%	4.87%	0.00%	1.39%	24.334	<0.0005

(n=567)
$p \leq 0.05$

The categories very good (rating of 1) were combined with good (rating of 2) and very poor (rating of 5) were combined with poor (rating of 4) to determine the significant differences of food quality, value, service, and sanitation and cleanliness.

Questions yielding a chi square analysis with a significant difference included flavor of the food, temperature of the food, appearance of the food, and the variety of food choices available. Only one question related to value, the perceived value of the meal purchased, yielded a chi square analysis and a significant difference. Service questions yielding a significant difference included the speed of service and the professional appearance of the food service personnel. Sanitation and cleanliness questions yielding a significant difference included the general appearance of the dining area and the cleanliness of the serving and dining area.

Questions yielding a chi square analysis with a significant difference ($p \leq 0.05$) are shown in Table 15 (Appendix I).

TABLE 15

A COMPARISON OF PRE TEST AND POST TEST QUESTIONS
YIELDING A SIGNIFICANT DIFFERENCE,

Combined Ratings

	VERY GOOD/GOOD		FAIR		POOR/VERY POOR		VALUE	PROBABILITY
FOOD QUALITY	Pre Test	Post Test	Pre	Post	Pre	Post		
The flavor of the food?	55.15%	46.40%	40.44%	40.14%	4.41%	13.46%	2.125	0.010
The temperature of the food?	54.48%	44.65%	36.57%	37.44%	8.96%	17.91%	7.309	0.026
The appearance of the food?	71.32%	56.74%	25.00%	33.95%	3.68%	9.30%	10.363	0.006
The variety of food choices?	49.63%	33.57%	34.81%	34.73%	15.56%	31.70%	16.699	<0.0005
VALUE								
The perceived value of the meal you purchased?	69.92%	41.07%	18.80%	42.46%	11.28%	16.47%	34.910	<0.0005
SERVICE								
The speed of our service?	62.77%	42.33%	27.74%	28.14%	9.49%	29.53%	26.106	<0.0005
The professional appearance of our personnel?	80.88%	62.41%	16.91%	30.39%	2.21%	7.19%	16.482	<0.0005
SANITATION & CLEANLINESS								
The general appearance of the dining area?	76.47%	64.04%	21.32%	30.63%	2.21%	5.34%	7.745	0.021
The cleanliness of the serving and dining area?	78.68%	60.79%	19.85%	32.95%	1.47%	6.26%	15.674	<0.0005

pre-test/survey A (n=128), post-test (n=434)
$p \leq 0.05$

Ho2

There will be no significant difference in the customers' retail preferences three months after the management company assumed responsibility of the food service department.

Twelve of the 23 chi square analyses were found to be significant at $p \leq 0.05$ when comparing questions relating to the customers' retail preferences (Appendix J).

Two of the 5 choices on the question relating to entrees eaten regularly were found to show significant differences. Respondents indicating they consume poultry regularly decreased from 78.30% to 64.68% (p=0.007) and respondents indicating they eat pork regularly increased from 16.98% to 26.97% (p=0.034%). No significant difference was found among respondents consuming beef, seafood, and vegetarian items. Nineteen respondents did not answer this question.

When asked, "which types of food do you enjoy?", there was a significant difference in respondents selecting off the grill items (p=0.003) with an increase from 30.00% to 45.90%. Pizza showed a significant difference (p=0.007) with an increase from 17.27% to 30.21%. Salad bar also showed a significant difference (p=0.007) decreasing from 70.91% to 60.66%. Respondents indicating they enjoyed other types of food were significantly different (p=0.012) decreasing from 20.00% to 11.01%. No significant difference was found among responses relating to specialty grab and go items, made to order deli sandwiches, hot entrees, or fast food. Seven respondents did not answer this question. Table 16 shows the results of the chi square analysis.

TABLE 16

FREQUENCY TABLE OF RETAIL PREFERENCES

Which entrees do you eat regularly?
(Check all that apply)

ENTREE	PRE TEST		POST TEST		VALUE	PROBABILITY
	No	Yes	No	Yes		
Poultry	21.70%	78.30%	35.32%	64.68%	7.150	0.007
Pork	83.02%	16.98%	73.03%	26.97%	4.507	0.034
Grill	70.00%	30.00%	54.10%	45.90%	9.043	0.003
Pizza	82.73%	17.27%	69.79%	30.21%	7.334	0.007
Salad Bar	29.09%	70.91%	39.34%	60.66%	3.934	0.047
Other	80.00%	20.00%	88.99%	11.01%	6.317	0.012

(n=537)
$p \leq 0.05$

On the question asking customers if they were interested in low fat/low cholesterol foods, a significant difference ($p=0.002$) was found with a decrease from 83.51% to 67.62%. Interest in low sodium foods showed a significant difference with an increase from 13.4% to 23.57% ($p=0.028$). Twenty-seven respondents did not answer this question. Table 17 shows the results of the chi square analyses.

TABLE 17

FREQUENCY TABLE OF RETAIL PREFERENCES

Are you interested in?
(Check all that apply)

INTEREST	PRE-TEST		POST-TEST		VALUE	PROBABILITY
	No	Yes	No	Yes		
Low Fat/Low Cholesterol	16.49%	83.51%	32.38%	67.62%	9.581	0.002
Low Sodium	86.60%	13.40%	76.43%	23.57%	4.802	0.028

(n=517)
$p \leq 0.05$

There was no significant difference found among customers interested in low calorie food. A significant difference ($p=0.004$) and a decrease from 85.32% to 71.70% replied that the nutritional content influenced their buying of certain items.

Breakfast and lunch showed a significant difference among responses on the question asking customers what times of day they ate in the cafeteria. Customers were able to select all choices that applied to their eating pattern. There was a significant difference among respondents eating breakfast ($p<0.0005$) with a decrease from 52.34% to 31.85%. Respondents eating lunch also decreased from 87.85% to 76.35% ($p=0.009$). A significant difference ($p=0.006$) was found among respondents eating in the cafeteria during the afternoon break period with an increase from 5.61% to 15.93%. No significant difference was found among customers eating in the cafeteria during dinner nor was there a significant difference among customers eating breakfast. Ten respondents did not answer this questions. Results of the chi square analysis are show in Table 18.

TABLE 18

FREQUENCY TABLE OF RETAIL PREFERENCES

What is the frequency you eat in the cafeteria?

	PRE TEST		POST TEST		VALUE	PROBABILITY
	No	Yes	No	Yes		
Breakfast	47.66%	52.34%	68.15%	31.85%	15.594	<0.0005
Lunch	12.15%	87.85%	23.65%	76.35%	6.744	0.009
PM Break	94.39%	5.61%	84.07%	15.93%	7.630	0.006

No significant difference was found on the question asking if customers were in interested in specialty food buffet bars.

Summary of Null Hypotheses

The researcher investigated two hypotheses. Both hypotheses compared baseline data to the customer satisfaction scores obtained in this study. Using the chi square analyses, a significant difference was found on both of the null hypotheses. Therefore, both hypotheses were rejected by the researcher.

Comments

There were 93 cumulative comments (Appendix K) that occurred on the pre-test and post-test. Respondents were allowed to make as many comments as they wanted. Some of the respondents did not write any comments, some only wrote one comment, and others wrote more than one. A list of comments from the other open ended questions can be found in Appendix L.

Pre-Test

Survey A

A total of 109 comments were written on the post-test. Table 19 shows the comments occurring most frequently on the customer satisfaction survey (Appendix M).

TABLE 19

Pre-Test/Survey A

COMMENT	FREQUENCY	PERCENT
The salad bar needs to be two sided	11	10.1%
Compliments about the new look	11	10.1%
We want the self-serve deli back	9	8.3%
Compliments about the service	6	5.5%
Variety of food choices	5	4.6%
Compliments about the employees	5	4.6%
½ orders of entrees and deli sandwiches should be available	5	4.6%

Retail Preference Survey

A total of 42 comments were written on the retail preference survey. Table 20 shows the comments occurring most frequently.

TABLE 20

FREQUENCY TABLE OF COMMENTS

Pre-Test/Retail Preference Survey

COMMENT	FREQUENCY	PERCENT
Variety of choices available	9	21.4%
Nutrition information	15	16.7%
Overcooked vegetables	3	7.1%

(n=42)

A total of 322 comments were written on the post-test. Table 21 shows the comments occurring most frequently on the customer satisfaction survey.

TABLE 21

FREQUENCY TABLE OF COMMENTS

Post-Test/Customer Satisfaction Survey

COMMENT	FREQUENCY	PERCENT
The lines are too long	54	16.8%
Complaints related to re-stocking (i.e. trays, silverware, napkins, cups, condiments)	21	6.5%
Complaints related to food quality (i..e. temperature, doneness, consistency)	21	6.5%
Prices	16	5.0%
Variety of food choices	14	4.3%
Compliments about the service	13	4.0%

Customer comments from the post-test were grouped into five categories (Table 22): food quality, value, service, sanitation, and other. Eighty-seven respondents made comments related to food quality, 13 made comments related to value, seven made comments related to sanitation, and 52 respondents made comments that were classified as other.

TABLE 22

FREQUENCY TABLE OF COMMENTS BY CATEGORY
(Food Quality, Value, Service, Sanitation & Cleanliness, Other)

Post-Test

Comment	Frequency	Percent
Food Quality	87	27.0%
Value	13	4.0%
Service	153	47.5%
Sanitation and Cleanliness	7	2.2%
Other	52	16.1%

CHAPTER V

DISCUSSION

The purpose of this study was to identify and compare the customer satisfaction levels three months after a contract management company assumed responsibility of the hospital food service department. This chapter was developed to present the summary, conclusions, and recommendations of the research in order to provide the appropriate insight for the study.

There were two hypotheses for the study.

Ho1: There will be no significant difference in the level of customer satisfaction three months after the management company assumed responsibility of the food service department.

Ho2: There will be no significant difference in the customers' retail preferences three months after the management company assumed responsibility of the food service department.

The subjects of the study were customers patronizing the hospital cafeteria. Six hundred-fifty surveys were distributed and 434 were returned.

The research instrument was developed using two of the management company's surveys which were also referred to as the pre-test. The instrument was divided into three major sections: satisfaction, retail preferences, and demographics. The satisfaction section

questions, service with five questions, and sanitation and cleanliness with four questions. A rating scale was used for customers to respond to each question with 1 being very good, 2 being good, 3 being fair, 4 being poor, and 5 being very poor. The retail preference section was comprised of twelve questions. There were six demographic questions in the third section. A section was provided at the end of the survey for comments.

The literature review was comprised of eight sections: Introduction, The Deming Management Method, Definition of the Customer, Definition of Quality, Customer Satisfaction & Dissatisfaction, Customer Service Applications, Review of Contract Managed Food Service, and Conclusion.

Summary of the Findings

Based on the information obtained from this study, the following findings were identified:

1. There was a significant difference between the level of satisfaction identified at the time the management company assumed responsibility for the food service department in comparison to the level of satisfaction three months later. There was a significant decrease in the level of satisfaction three months after the start date of the contract.
2. There was a significant difference between the customers' retail preferences identified at the time the management company assumed responsibility for the food service department in comparison to the level of satisfaction three months later.

Conclusions

This study found that there was a significant difference in both satisfaction levels and retail preferences three months after the contract company took over the food service department. A significant difference was found in all of the quality elements identified in the survey: food quality, value, service, and sanitation. Satisfaction levels decreased in all four of the areas measured.

A significant difference was found in 12 of the 23 retail preference comparisons including entree preferences, types of food, and nutrition. A significant difference was also found among the meal times customers ate in the cafeteria.

This research is only indicative of a three month period, the first three months of the management contract, and it cannot be assumed that the results of this survey are totally representative of the first three months in all new accounts taken over by a management company. Since no research has been done to identify whether the patterns found in this study are normal, assumptions are unfair. The sample sizes were not consistent when comparing the pre-test to the post-test, but this should not have affected the findings since this research compared the percentage rates of the responses.

Recommendations

The survey used in this research should be conducted again when the food court remodeling project is completed and the food court is re-opened in January, 1997. The information gathered from this research project should be used as baseline data or benchmark data. When the survey is conducted again, it should be compared to the results of this study.

Such a comparison will give the researcher and the management company a more accurate comparison of the satisfaction levels. This will allow the researcher to compare all questions using the chi square analyses whereas not all questions could be compared in this study because some of the questions on the post-test were not present on the pre-test. The survey should be conducted again three months after the food court re-opens. The survey can be used as an ongoing method of evaluating operational effectiveness in the food service department.

Additional research is necessary to determine if the findings of this research project are common when management companies assume management of new accounts. Additional research is also necessary to determine the effects change has on customer satisfaction. Additional research is also necessary to determine if the findings of this study are indicative of the changes that occurred over the first three months of the management contract and whether the decreased satisfaction levels were a result of the new management, the changes implemented in the cafeteria, the closing of the food court, or a combination.

Hartley (1983) explains that people have a natural reluctance to embrace change because change is disruptive. People are opposed to accepting change because change can alter or even destroy their accepted ways of doing things. Hartley further explains that resistance to change can be eased through a communication process. He also recommends gradual rather than abrupt change because it is often easier for people to accept. However, in any situation where change is needed, it should not be delayed or canceled because of the possible negative repercussions on the organization. In the end, people will adapt, but it may take some longer than others.

Heil, Parker, and Tate (1995) explain that to effectively overcome the natural tendency of an organization to protect its past, managers must upset the comfortable balance provided by the existing system. Therefore, managers should anticipate a resistance to change and consider providing a system or environment that make the change appear more secure and rewarding. To reduce the customers' resistance to change, managers can generate information and create new processes that illustrate the benefits of and reasons for the change.

Management should focus on training the cafeteria associates and communicating with the customers. As future change occurs, the communication process should be well planned and implemented as a strategy to ensure the success of the change. Communication could be done through electronic memorandums to department managers or inserts in the hospital's weekly newsletter notifying customers of changes such as new menus or changes in pricing. Information might be provided to the customers regarding the new menu and the reasons why menu items seem to have less flavor. Although it is difficult for customers to understand the reasons, management could explain to customers the cost effectiveness (food cost and labor cost) of offering only three entrees per day and the cost effectiveness of one of those entrees sometimes being an item similar to the entrees on the patient menu. Additionally, management could communicate the cafeteria menu by distributing and posting a weekly menu. Daily or weekly specials could also be advertised. It is also critical that the food service employees thoroughly understand the reasons for change and the implications of the change. Their understanding will be reflected in their work and consequently in the quality of service delivered to the customers.

Ruf (1989) stated that food service personnel have the greatest impact on the customers' perception of service followed by sanitation, quality, taste, temperature, and

appearance. Deming (1992) discusses the importance of training, retraining, and the need for management to "institute a vigorous program of education and retraining". The quality elements identified in this study (food quality, value, service, and sanitation and cleanliness) must therefore be integrated into the cafeteria associates' training and development.

Cafeteria associates should understand the importance of the training they receive and how it is intended to improve the quality of service that the department offers. Cafeteria associates' customer service skills can affect the customers' overall perception of the department. Portion sizes can affect the customers' perception of value. Sanitation issues such as clean serving areas and wearing plastic gloves can affect the customers' perception of sanitation and cleanliness. They should understand the importance of food temperatures and pan garnishes on the serving line and how the customer perceives the food quality in relation to temperature and appearance.

It is the responsibility of the management team to set an example for the cafeteria associates and ensure that proper policies and procedures are followed. All new employees, whether hourly or management, should understand the importance of proper procedures and how they affect the quality elements identified by this research and the service provided to cafeteria customers.

Continuous quality improvement should continue to be a priority. Dr. Deming (1992) discusses the importance of "taking action to accomplish the transformation". A variety of strategies could be implemented into such an action plan: 1) implement a food service focus group; 2) implement a customer comment box; and 3) consider a payroll deduction system and coin changers to expedite the amount of time customers stand in line at the cash register. It is assumed that management will recognize the importance of satisfaction levels and how

certain changes can affect those levels. This can be accomplished by listening to the customers.

Covey (1990) discusses the importance of listening to the customers and implementing customers' expectations into management's daily activities. Customer feedback is important to service businesses. Customer feedback should continue to be utilized by management as strategies are developed and implemented to improve customer satisfaction.

Deming (1982) states, "one requirement for innovation is faith that there will be a future. Innovation, the foundation of the future, cannot thrive unless management has declared unshakable commitment to quality." Through continuous feedback loops, management can monitor customer satisfaction, and integrate customer feedback into a management style that will lead to the provision of quality service.

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APPENDIX A

PRE TEST/RETAIL PREFERENCE SURVEY

Retail Preference Survey

We would appreciate you taking the time today to answer the following preference questions. In doing so it will help our retail team in developing a new plan.

Thank you.....Food and Nutrition Services

1 Which do you eat regularly?

- ☐ Poultry
- ☐ Beef
- ☐ Seafood
- ☐ Pork
- ☐ Vegetarian Meals

2 Which types of food do you enjoy?

- ☐ Off the Grill Items
- ☐ Pizza Selections
- ☐ Specialty Grab & Go Items
- ☐ Made to Order Deli Sandwich
- ☐ Hot Entree Options
- ☐ Fast Food
- ☐ Salad Bar
- ☐ Other - Specify:_____

3 Would you enjoy specialty Food Buffet bars? (i.e. pastas, potatoes, ice cream?)

☐ Yes ☐ No

4. Are you interested in:

- ☐ Low Fat/Low Cholesterol Foods
- ☐ Low Calorie Foods
- ☐ Low Sodium Foods
- ☐ Nutritional Information
- ☐ Heart Healthy

5. Does the nutritional content influence your buying of certain items?

☐ Yes ☐ No

6. Do you have any beverage suggestions?

_____

7. What is the frequency you eat in the cafeteria or Harvest Cafe:

- ☐ Daily
- ☐ 1-3 Times Per Week
- ☐ When you have time

8. At what time do you usually eat in either location?

☐ Breakfast ☐ Afternoon break
☐ Morning Break
☐ Lunch ☐ Dinner

9. What three items would you like to see on the salad bar? _____

_____

_____

10. Which Fast Foods do you prefer?

- ☐ Chick Fil "A"
- ☐ Burger King
- ☐ Taco Bell
- ☐ Dunkin Donuts
- ☐ Subway
- ☐ KFC
- ☐ Pizza Hut
- ☐ Other-Specify_____

11. List other foods you prefer:

_____

_____

_____

Please feel free to write additional suggestions on the reverse side and drop the completed survey into the special basket located in the cafeteria. **Thanks!**

APPENDIX B

PRE-TEST/SURVEY A

We invite your comments. Your response to this special survey helps us serve you better.

	Very Good	Good	Fair	Poor	Very Poor
1. ***Overall*, how do you rate the food service?**	☐	☐	☒	☐	☐
2. ***How do you rate the following:***					
a. The flavor of the food?	☐	☐	☒	☐	☐
b. The temperature of the food?	☐	☒	☐	☐	☐
c. The quality of the food?	☐	☐	☐	☒	☐
d. The appearance and presentation of the food?	☐	☐	☒	☐	☐
e. The variety of food choices available?	☐	☐	☐	☒	☐
f. The helpfulness and friendliness of our food service personnel?	☐	☒	☐	☐	☐
g. The speed of our service?	☐	☐	☒	☐	☐
h. The professional appearance of our food service personnel?	☐	☒	☐	☐	☐
i. The cleanliness of the serving and dining area?	☐	☒	☐	☐	☐
j. The general appearance of the dining area?	☐	☒	☐	☐	☐
k. The cleanliness of trays, silverware, plates and glasses?	☐	☒	☐	☐	☐
l. The value of the meals you purchased?	☐	☐	☒	☐	☐

3. **Your comments are welcome. Please write on the reverse.**

4. **When do you usually work?** ☐ Day Shift ☒ Evening Shift ☐ Night Shift

5. **How often do you dine here?**
☐ Everyday ☒ 2 or 3 times a week ☐ Once a week ☐ Infrequently

(Optional)
Your Name:_____ Phone Number:_____

THANK YOU!

R

APPENDIX C

POST-TEST/RESEARCH INSTRUMENT
CUSTOMER SATISFACTION SURVEY

Hospital A

Cafeteria Customer Satisfaction Survey

Conducted by Food and Nutrition Services Department

Dear Customer,

This survey is part of a research study being conducted by Oklahoma State University in cooperation with Company X and Hospital A to determine the levels of customer satisfaction in the hospital cafeteria.

Your participation in this survey is voluntary and all responses will be kept strictly confidential. Should you have any questions, please contact:

Jana Gardner, Hospital A, Food and Nutrition Services Department

Gay C. Clarkson, 305 Whitehurst, Oklahoma State University, Stillwater, OK 74078, 405-744-5700

Signature of participant (voluntary) _____

We appreciate you taking the time to answer the following questions. Your responses and comments will help the Food and Nutrition Services Department to serve you better. Please complete the survey only one time. **Thank you.**

Instructions:

Please mark the box that most accurately reflects your opinion. After you complete this survey, please return it to one of the cashiers in the cafeteria and you will receive a free cookie or a cup of coffee.

How do you rate the following?	**Very Good**	**Good**	**Fair**	**Poor**	**Very Poor**
Food Quality:					
The quality of the food?	❑	❑	❑	❑	❑
The flavor of the food?	❑	❑	❑	❑	❑
The temperature of the food?	❑	❑	❑	❑	❑
The appearance of the food?	❑	❑	❑	❑	❑
The variety of food choices available?	❑	❑	❑	❑	❑
Value:					
The perceived value of the meal you purchased?	❑	❑	❑	❑	❑
The portion sizes?	❑	❑	❑	❑	❑
The prices of our menu items?	❑	❑	❑	❑	❑
Service:					
The helpfulness of our personnel?	❑	❑	❑	❑	❑
The friendliness of our personnel?	❑	❑	❑	❑	❑
The speed of our service?	❑	❑	❑	❑	❑
The professional appearance of our personnel?	❑	❑	❑	❑	❑
The visibility of management during peak periods?	❑	❑	❑	❑	❑
Sanitation & Cleanliness:					
The general appearance of the dining area?	❑	❑	❑	❑	❑
The cleanliness of trays, silverware, and plates?	❑	❑	❑	❑	❑
The cleanliness of the serving and dining areas?	❑	❑	❑	❑	❑
The cleanliness of the tray return area?	❑	❑	❑	❑	❑

Which entrees do you eat regularly? (check all that apply)

- ❑ Poultry
- ❑ Pork
- ❑ Beef
- ❑ Vegetarian
- ❑ Seafood

Which types of food do you enjoy?

- ❑ Off the grill items
- ❑ Pizza selections
- ❑ Specialty grab & go items
- ❑ Made to order deli sandwich
- ❑ Hot entree options
- ❑ Fast food
- ❑ Salad bar
- ❑ Other - specify:_____

Would you enjoy specialty Theme Days? (i.e. Italian, Mexican, Chinese, etc.)

- ❑ Yes
- ❑ No

Would you enjoy specialty Food Buffet bars? (i.e. pastas, potatoes, ice cream?)

- ❑ Yes
- ❑ No

Are you interested in: (check all that apply)

- ❑ Low fat/low cholesterol foods
- ❑ Low calorie foods
- ❑ Low sodium food
- ❑ Heart healthy foods
- ❑ High fiber foods
- ❑ None of the above

Does the nutritional content influence your buying of certain items?

- ❑ Yes
- ❑ No

Does the price influence your buying of certain items?

- ❑ Yes
- ❑ No

What is the frequency you eat in the cafeteria?

- ❑ Daily
- ❑ More than once per day
- ❑ 1 - 3 times per week
- ❑ 1 - 3 times per month

At what time do you usually eat in the cafeteria?

- ❑ Breakfast
- ❑ Morning break
- ❑ Lunch
- ❑ Afternoon break
- ❑ Dinner

What new items would you like to see on the salad bar?

_____

_____

What new beverages would you like?

_____

_____

List other foods you prefer:

_____

_____

_____

_____

Gender: Male ❑ Female ❑

Age:

16 - 25 yrs. ❑ 46 - 55 yrs ❑
26 - 35 yrs. ❑ 56 - 65 yrs. ❑
36 - 45 yrs. ❑ 66+ yrs. ❑

Shift: Day ❑ Evening ❑ Night ❑

Ethnic Background:

Caucasian ❑
Hispanic ❑
Native American ❑
African American ❑
Asian ❑
Other ❑

Highest Level of Education:

High School ❑
Vocational-Technical ❑
Some College ❑
Associate Degree ❑
Bachelors Degree ❑
Masters Degree ❑
Doctoral Degree ❑
Nursing Degree ❑
Medical Degree ❑

Which of the following best describes your position in the hospital?

Medical Staff ❑
Administrative ❑
Nursing Staff ❑
Prof/Tech Staff ❑
General Support ❑
Secretarial Staff ❑
Volunteer ❑
Visitor ❑
Student ❑

Your comments are welcome. Please write them on the lines provided below.

_____

_____

_____

_____

Please return your completed survey to one of the cashiers in the cafeteria.
When you return the survey, you will receive a free cookie or a cup of coffee.

THANK YOU!

APPENDIX D

APPROVAL FORM FOR OKLAHOMA STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD FOR HUAN RESEARCH

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

Date: 09-09-96 **IRB#: HE-97-008**

Proposal Title: THE EFFECTS OF A MANAGEMENT COMPANY'S STRATEGIES ON CUSTOMER SATISFACTION IN A HEALTH CARE RETAIL CAFETERIA

Principal Investigator(s): Jerrold Leong, Jana Gardner

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT MEETING, AS WELL AS ARE SUBJECT TO MONITORING AT ANY TIME DURING THE APPROVAL PERIOD.
APPROVAL STATUS PERIOD VALID FOR ONE CALENDAR YEAR AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL.
ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

Comments, Modifications/Conditions for Approval or Reasons for Deferral or Disapproval are as follows:

Signature: Date: September 18, 1996

Chair of Institutional Review Board

cc: Jana Gardner

APPENDIX E

PILOT TEST

Cafeteria Customer Satisfaction Survey

Conducted by Food and Nutrition Services Department

Dear Customer,
We would appreciate you taking the time today to answer the following questions. We encourage you to share your comments with us because your responses will help us to serve you better. Please complete the survey only one time. Thank you.

Instructions:
Please mark the box that most accurately reflects your opinion.

How do you rate the following?	**Very Good**	**Good**	**Fair**	**Poor**	**Very Poor**
Food Quality:					
The quality of the food?	❑	❑	❑	❑	❑
The flavor of the food?	❑	❑	❑	❑	❑
The temperature of the food?	❑	❑	❑	❑	❑
The appearance and presentation of the food?	❑	❑	❑	❑	❑
The variety of food choices available?	❑	❑	❑	❑	❑
Service:					
The helpfulness and friendliness of our personnel?	❑	❑	❑	❑	❑
The speed of our service?	❑	❑	❑	❑	❑
The professional appearance of our personnel?	❑	❑	❑	❑	❑
The helpfulness & friendliness of our management?	❑	❑	❑	❑	❑
Sanitation & Cleanliness:					
The cleanliness of the serving & dining areas?	❑	❑	❑	❑	❑
The cleanliness of the tray return area?	❑	❑	❑	❑	❑
The general appearance of the dining area?	❑	❑	❑	❑	❑
The cleanliness of trays, silverware, plates & glasses?	❑	❑	❑	❑	❑
Value:					
The value of the meal you purchased?	❑	❑	❑	❑	❑
The portion sizes?	❑	❑	❑	❑	❑
The prices of our menu items?	❑	❑	❑	❑	❑

127

Which do you eat regularly?

- ☐ Poultry
- ☐ Beef
- ☐ Seafood
- ☐ Pork
- ☐ Vegetarian meals

Which types of food do you enjoy?

- ☐ Off the grill items
- ☐ Pizza selections
- ☐ Specialty grab & go items
- ☐ Made to order deli sandwich
- ☐ [redacted]
- ☐ Hot entree options
- ☐ Fast food
- ☐ Salad bar
- ☐ Other - specify:_____

Would you enjoy specialty Food Buffet bars? (i.e. pastas, potatoes, ice cream?)

Yes ☐ No

Are you interested in:

- ☐ Low fat/low cholesterol foods
- ☐ Low calorie foods
- ☐ Low sodium foods
- ☐ Nutritional information
- ☐ Heart healthy

Does the nutritional content influence your buying of certain items?

☐ Yes ☐ No

Do you have any beverage suggestions?

_____

What is the frequency you eat in the cafeteria or Harvest Grill:

- ☐ Daily
- ☐ 1 - 3 time per week
- ☐ When you have time

At what time do you usually eat in either location?

☐ Breakfast ☐ Afternoon break
☐ Morning ☐ Lunch
☐ Dinner

What items would you like to see on the salad bar? _____

_____

Which fast foods do you prefer?

- ☐ Chick Fil "A"
- ☐ Burger King
- ☐ Taco Bell
- ☐ Dunkin Donuts
- ☐ Subway
- ☐ KFC
- ☐ Pizza Hut
- ☐ Other-specify_____

List other foods you prefer:

_____

_____

_____

Gender: Male ☐ Female ☐

Age:

16 - 25 yrs. ☐ 46 - 55 yrs ☐
26 - 35 yrs. ☐ 56 - 65 yrs. ☐
36 - 45 yrs. ☐ 66+ yrs. ☐

Shift: Day ☐ Evening ☐ Night ☐

Ethnic Background:

Native American ☐
Hispanic ☐
Caucasian ☐
African American ☐
Other ☐

Education Level:

High School ☐
Technical School ☐
Some College ☐
College Degree ☐

Status:

Medical Staff ☐ Secretarial Staff ☐
Administrative ☐ Volunteer ☐
Nursing Staff ☐ Visitor ☐
Prof/Tech Staff ☐ Student ☐
General Support ☐

Your comments are welcome. Please write them on the lines provided below.

_____

_____

_____

Please return your completed survey to one of the cashiers in the cafeteria. When you return the survey, you will receive a free cookie or a cup of coffee.

THANK YOU!

APPENDIX F

RESULTS OF CHI SQUARE ANALYSIS
MEAL COMPARISON DATA
(LIKERT SCALE CONDENSED TO 2,3,4)

2 = Very Good (1) and Good (2) combined
3 = Fair (3)
4 = Poor (4) and Very Poor (5) combined

TABLE OF COLLTIME BY FD_QUAL1

COLLTIME	FD_QUAL1			
Frequency Expected Cell Chi-Square Percent Row Pct Col Pct	2	3	4	Total
BREAKFST	37 33.584 0.3476 9.23 55.22 18.41	21 25.898 0.9263 5.24 31.34 13.55	9 7.5187 0.2918 2.24 13.43 20.00	67 16.71
DINNER	15 14.035 0.0664 3.74 53.57 7.46	12 10.823 0.128 2.99 42.86 7.74	1 3.1421 1.4604 0.25 3.57 2.22	28 6.98
LUNCH	83 87.718 0.2538 20.70 47.43 41.29	73 67.643 0.4242 18.20 41.71 47.10	19 19.638 0.0208 4.74 10.86 42.22	175 43.64
WEEK END	66 65.663 0.0017 16.46 50.38 32.84	49 50.636 0.0529 12.22 37.40 31.61	16 14.701 0.1148 3.99 12.21 35.56	131 32.67
Total	201 50.12	155 38.65	45 11.22	401 100.00

Frequency Missing = 33

Statistic	DF	Value	Prob
Chi-Square	6	4.089	0.665

TABLE OF COLLTIME BY FD_QUAL2

COLLTIME	FD_QUAL2			
Frequency Expected Cell Chi-Square Percent Row Pct Col Pct	2	3	4	Total
BREAKFST	34 30.652 0.3656 8.50 50.75 18.58	25 26.967 0.1435 6.25 37.31 15.53	8 9.38 0.203 2.00 11.94 14.29	67 16.75
DINNER	12 12.81 0.0512 3.00 42.86 6.56	15 11.27 1.2345 3.75 53.57 9.32	1 3.92 2.1751 0.25 3.57 1.79	28 7.00
LUNCH	75 79.605 0.2664 18.75 43.10 40.98	74 70.035 0.2245 18.50 42.53 45.96	25 24.36 0.0168 6.25 14.37 44.64	174 43.50
WEEK END	62 59.932 0.0713 15.50 47.33 33.88	47 52.728 0.6221 11.75 35.88 29.19	22 18.34 0.7304 5.50 16.79 39.29	131 32.75
Total	183 45.75	161 40.25	56 14.00	400 100.00

Frequency Missing = 34

Statistic	DF	Value	Prob
Chi-Square	6	6.105	0.412

TABLE OF COLLTIME BY FD_QUAL3

COLLTIME	FD_QUAL3			
Frequency Expected Cell Chi-Square Percent Row Pct Col Pct	2	3	4	Total
BREAKFST	33 30.105 0.2783 8.27 50.00 18.13	21 24.481 0.495 5.26 31.82 14.19	12 11.414 0.0301 3.01 18.18 17.39	66 16.54
DINNER	14 12.772 0.1181 3.51 50.00 7.69	10 10.386 0.0143 2.51 35.71 6.76	4 4.8421 0.1465 1.00 14.29 5.80	28 7.02
LUNCH	76 79.368 0.143 19.05 43.68 41.76	68 64.541 0.1853 17.04 39.08 45.95	30 30.09 0.0003 7.52 17.24 43.48	174 43.61
WEEK END	59 59.754 0.0095 14.79 45.04 32.42	49 48.591 0.0034 12.28 37.40 33.11	23 22.654 0.0053 5.76 17.56 33.33	131 32.83
Total	182 45.61	148 37.09	69 17.29	399 100.00

Frequency Missing = 35

Statistic	DF	Value	Prob
Chi-Square	6	1.429	0.964

TABLE OF COLLTIME BY FD_QUAL4

COLLTIME	FD_QUAL4			
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	2	3	4	Total
BREAKFST	41	20	6	67
	37.278	23.341	6.381	
	0.3716	0.4782	0.0227	
	10.28	5.01	1.50	16.79
	61.19	29.85	8.96	
	18.47	14.39	15.79	
DINNER	19	8	1	28
	15.579	9.7544	2.6667	
	0.7512	0.3155	1.0417	
	4.76	2.01	0.25	7.02
	67.86	28.57	3.57	
	8.56	5.76	2.63	
LUNCH	95	63	15	173
	96.256	60.268	16.476	
	0.0164	0.1238	0.1323	
	23.81	15.79	3.76	43.36
	54.91	36.42	8.67	
	42.79	45.32	39.47	
WEEK END	67	48	16	131
	72.887	45.637	12.476	
	0.4755	0.1224	0.9953	
	16.79	12.03	4.01	32.83
	51.15	36.64	12.21	
	30.18	34.53	42.11	
Total	222	139	38	399
	55.64	34.84	9.52	100.00

Frequency Missing = 35

Statistic	DF	Value	Prob
Chi-Square	6	4.847	0.564

TABLE OF COLLTIME BY FD_QUAL5

COLLTIME	FD_QUAL5			
Frequency Expected Cell Chi-Square Percent Row Pct Col Pct	2	3	4	Total
BREAKFST	33 22.726 4.6445 8.29 49.25 24.44	15 23.231 2.9164 3.77 22.39 10.87	19 21.043 0.1983 4.77 28.36 15.20	67 16.83
DINNER	14 9.4975 2.1345 3.52 50.00 10.37	11 9.7085 0.1718 2.76 39.29 7.97	3 8.794 3.8174 0.75 10.71 2.40	28 7.04
LUNCH	55 59.02 0.2738 13.82 31.61 40.74	61 60.332 0.0074 15.33 35.06 44.20	58 54.648 0.2056 14.57 33.33 46.40	174 43.72
WEEK END	33 43.756 2.6441 8.29 25.58 24.44	51 44.729 0.8793 12.81 39.53 36.96	45 40.515 0.4965 11.31 34.88 36.00	129 32.41
Total	135 33.92	138 34.67	125 31.41	398 100.00

Frequency Missing = 36

Statistic	DF	Value	Prob
Chi-Square	6	18.390	0.005

TABLE OF COLLTIME BY FD_VALU1

COLLTIME	FD_VALU1			
Frequency Expected Cell Chi-Square Percent Row Pct Col Pct	2	3	4	Total
BREAKFST	31 27.135 0.5505 7.75 46.27 19.14	19 28.307 3.0603 4.75 28.36 11.24	17 11.557 2.5629 4.25 25.37 24.64	67 16.75
DINNER	15 11.34 1.1813 3.75 53.57 9.26	11 11.83 0.0582 2.75 39.29 6.51	2 4.83 1.6582 0.50 7.14 2.90	28 7.00
LUNCH	67 70.47 0.1709 16.75 38.51 41.36	76 73.515 0.084 19.00 43.68 44.97	31 30.015 0.0323 7.75 17.82 44.93	174 43.50
WEEK END	49 53.055 0.3099 12.25 37.40 30.25	63 55.347 1.0581 15.75 48.09 37.28	19 22.597 0.5727 4.75 14.50 27.54	131 32.75
Total	162 40.50	169 42.25	69 17.25	400 100.00

Frequency Missing = 34

Statistic	DF	Value	Prob
Chi-Square	6	11.299	0.080

TABLE OF COLLTIME BY FD_VALU2

COLLTIME	FD_VALU2			
Frequency Expected Cell Chi-Square Percent Row Pct Col Pct	2	3	4	Total
BREAKFST	32 32.495 0.0075 8.00 47.76 16.49	22 24.455 0.2465 5.50 32.84 15.07	13 10.05 0.8659 3.25 19.40 21.67	67 16.75
DINNER	16 13.58 0.4313 4.00 57.14 8.25	11 10.22 0.0595 2.75 39.29 7.53	1 4.2 2.4381 0.25 3.57 1.67	28 7.00
LUNCH	93 84.39 0.8784 23.25 53.45 47.94	57 63.51 0.6673 14.25 32.76 39.04	24 26.1 0.169 6.00 13.79 40.00	174 43.50
WEEK END	53 63.535 1.7469 13.25 40.46 27.32	56 47.815 1.4011 14.00 42.75 38.36	22 19.65 0.281 5.50 16.79 36.67	131 32.75
Total	194 48.50	146 36.50	60 15.00	400 100.00

Frequency Missing = 34

Statistic	DF	Value	Prob
Chi-Square	6	9.193	0.163

TABLE OF COLLTIME BY FD_VALU3

COLLTIME	FD_VALU3			
Frequency Expected Cell Chi-Square Percent Row Pct Col Pct	2	3	4	Total
BREAKFST	29 27.264 0.1105 7.30 43.94 17.68	23 25.602 0.2645 5.79 34.85 14.94	14 13.134 0.0572 3.53 21.21 17.72	66 16.62
DINNER	14 11.567 0.5119 3.53 50.00 8.54	11 10.861 0.0018 2.77 39.29 7.14	3 5.5718 1.1871 0.76 10.71 3.80	28 7.05
LUNCH	70 71.053 0.0156 17.63 40.70 42.68	65 66.72 0.0444 16.37 37.79 42.21	37 34.227 0.2247 9.32 21.51 46.84	172 43.32
WEEK END	51 54.116 0.1794 12.85 38.93 31.10	55 50.816 0.3445 13.85 41.98 35.71	25 26.068 0.0438 6.30 19.08 31.65	131 33.00
Total	164 41.31	154 38.79	79 19.90	397 100.00

Frequency Missing = 37

Statistic	DF	Value	Prob
Chi-Square	6	2.985	0.811

TABLE OF COLLTIME BY SERVIC1

COLLTIME	SERVIC1			
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	2	3	4	Total
BREAKFST	54	9	4	67
	48.529	13.602	4.8697	
	0.6168	1.5567	0.1553	
	13.53	2.26	1.00	16.79
	80.60	13.43	5.97	
	18.69	11.11	13.79	
DINNER	20	8	0	28
	20.281	5.6842	2.0351	
	0.0039	0.9435	2.0351	
	5.01	2.01	0.00	7.02
	71.43	28.57	0.00	
	6.92	9.88	0.00	
LUNCH	122	39	12	173
	125.31	35.12	12.574	
	0.0872	0.4286	0.0262	
	30.58	9.77	3.01	43.36
	70.52	22.54	6.94	
	42.21	48.15	41.38	
WEEK END	93	25	13	131
	94.885	26.594	9.5213	
	0.0374	0.0955	1.271	
	23.31	6.27	3.26	32.83
	70.99	19.08	9.92	
	32.18	30.86	44.83	
Total	289	81	29	399
	72.43	20.30	7.27	100.00

Frequency Missing = 35

Statistic	DF	Value	Prob
Chi-Square	6	7.257	0.298

TABLE OF COLLTIME BY SERVIC2

COLLTIME	SERVIC2			
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	2	3	4	Total
BREAKFST	56	7	4	67
	47.57	14.238	5.1925	
	1.4939	3.6791	0.2739	
	14.00	1.75	1.00	16.75
	83.58	10.45	5.97	
	19.72	8.24	12.90	
DINNER	19	9	0	28
	19.88	5.95	2.17	
	0.039	1.5634	2.17	
	4.75	2.25	0.00	7.00
	67.86	32.14	0.00	
	6.69	10.59	0.00	
LUNCH	120	44	10	174
	123.54	36.975	13.485	
	0.1014	1.3347	0.9006	
	30.00	11.00	2.50	43.50
	68.97	25.29	5.75	
	42.25	51.76	32.26	
WEEK END	89	25	17	131
	93.01	27.837	10.153	
	0.1729	0.2892	4.6184	
	22.25	6.25	4.25	32.75
	67.94	19.08	12.98	
	31.34	29.41	54.84	
Total	284	85	31	400
	71.00	21.25	7.75	100.00

Frequency Missing = 34

Statistic	DF	Value	Prob
Chi-Square	6	16.637	0.011

TABLE OF COLLTIME BY SERVIC3

COLLTIME	SERVIC3			
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	2	3	4	Total
BREAKFST	45	14	8	67
	27.875	18.975	20.15	
	10.521	1.3044	7.3265	
	11.28	3.51	2.01	16.79
	67.16	20.90	11.94	
	27.11	12.39	6.67	
DINNER	15	6	7	28
	11.649	7.9298	8.4211	
	0.9639	0.4696	0.2398	
	3.76	1.50	1.75	7.02
	53.57	21.43	25.00	
	9.04	5.31	5.83	
LUNCH	58	61	54	173
	71.975	48.995	52.03	
	2.7134	2.9415	0.0746	
	14.54	15.29	13.53	43.36
	33.53	35.26	31.21	
	34.94	53.98	45.00	
WEEK END	48	32	51	131
	54.501	37.1	39.398	
	0.7755	0.7011	3.4162	
	12.03	8.02	12.78	32.83
	36.64	24.43	38.93	
	28.92	28.32	42.50	
Total	166	113	120	399
	41.60	28.32	30.08	100.00

Frequency Missing = 35

Statistic	DF	Value	Prob
Chi-Square	6	31.448	0.000

TABLE OF COLLTIME BY SERVIC4

COLLTIME	SERVIC4			
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	2	3	4	Total
BREAKFST	51	13	3	67
	42.21	19.932	4.8575	
	1.8305	2.4111	0.7103	
	12.75	3.25	0.75	16.75
	76.12	19.40	4.48	
	20.24	10.92	10.34	
DINNER	20	7	1	28
	17.64	8.33	2.03	
	0.3157	0.2124	0.5226	
	5.00	1.75	0.25	7.00
	71.43	25.00	3.57	
	7.94	5.88	3.45	
LUNCH	120	48	6	174
	109.62	51.765	12.615	
	0.9829	0.2738	3.4687	
	30.00	12.00	1.50	43.50
	68.97	27.59	3.45	
	47.62	40.34	20.69	
WEEK END	61	51	19	131
	82.53	38.972	9.4975	
	5.6166	3.7119	9.5075	
	15.25	12.75	4.75	32.75
	46.56	38.93	14.50	
	24.21	42.86	65.52	
Total	252	119	29	400
	63.00	29.75	7.25	100.00

Frequency Missing = 34

Statistic	DF	Value	Prob
Chi-Square	6	29.564	0.000

TABLE OF COLLTIME BY SERVIC5

COLLTIME	SERVIC5			
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	2	3	4	Total
BREAKFST	37 27.644 3.1665 9.69 56.06 23.12	14 23.497 3.8387 3.66 21.21 10.29	15 14.859 0.0013 3.93 22.73 17.44	66 17.28
DINNER	12 11.728 0.0063 3.14 42.86 7.50	13 9.9686 0.9218 3.40 46.43 9.56	3 6.3037 1.7314 0.79 10.71 3.49	28 7.33
LUNCH	71 67.435 0.1885 18.59 44.10 44.38	54 57.319 0.1922 14.14 33.54 39.71	36 36.246 0.0017 9.42 22.36 41.86	161 42.15
WEEK END	40 53.194 3.2725 10.47 31.50 25.00	55 45.215 2.1177 14.40 43.31 40.44	32 28.592 0.4063 8.38 25.20 37.21	127 33.25
Total	160 41.88	136 35.60	86 22.51	382 100.00

Frequency Missing = 52

Statistic	DF	Value	Prob
Chi-Square	6	15.845	0.015

TABLE OF COLLTIME BY SANIT1

COLLTIME	SANIT1			
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	2	3	4	Total
BREAKFST	55	11	1	67
	42.545	20.77	3.685	
	3.6462	4.5957	1.9564	
	13.75	2.75	0.25	16.75
	82.09	16.42	1.49	
	21.65	8.87	4.55	
DINNER	16	11	1	28
	17.78	8.68	1.54	
	0.1782	0.6201	0.1894	
	4.00	2.75	0.25	7.00
	57.14	39.29	3.57	
	6.30	8.87	4.55	
LUNCH	108	54	12	174
	110.49	53.94	9.57	
	0.0561	0.0001	0.617	
	27.00	13.50	3.00	43.50
	62.07	31.03	6.90	
	42.52	43.55	54.55	
WEEK END	75	48	8	131
	83.185	40.61	7.205	
	0.8054	1.3448	0.0877	
	18.75	12.00	2.00	32.75
	57.25	36.64	6.11	
	29.53	38.71	36.36	
Total	254	124	22	400
	63.50	31.00	5.50	100.00

Frequency Missing = 34

STATISTICS FOR TABLE OF COLLTIME BY SANIT1

Statistic	DF	Value	Prob
Chi-Square	6	14.097	0.029

TABLE OF COLLTIME BY SANIT2

COLLTIME	SANIT2			
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	2	3	4	Total
BREAKFST	54	10	3	67
	41.708	21.105	4.1875	
	3.623	5.8432	0.3368	
	13.50	2.50	0.75	16.75
	80.60	14.93	4.48	
	21.69	7.94	12.00	
DINNER	17	11	0	28
	17.43	8.82	1.75	
	0.0106	0.5388	1.75	
	4.25	2.75	0.00	7.00
	60.71	39.29	0.00	
	6.83	8.73	0.00	
LUNCH	105	57	12	174
	108.31	54.81	10.875	
	0.1015	0.0875	0.1164	
	26.25	14.25	3.00	43.50
	60.34	32.76	6.90	
	42.17	45.24	48.00	
WEEK END	73	48	10	131
	81.548	41.265	8.1875	
	0.8959	1.0992	0.4012	
	18.25	12.00	2.50	32.75
	55.73	36.64	7.63	
	29.32	38.10	40.00	
Total	249	126	25	400
	62.25	31.50	6.25	100.00

Frequency Missing = 34

STATISTICS FOR TABLE OF COLLTIME BY SANIT2

Statistic	DF	Value	Prob
Chi-Square	6	14.804	0.022

TABLE OF COLLTIME BY SANIT3

COLLTIME	SANIT3			
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	2	3	4	Total
BREAKFST	56	8	3	67
	40.368	22.445	4.1875	
	6.0538	9.2964	0.3368	
	14.00	2.00	0.75	16.75
	83.58	11.94	4.48	
	23.24	5.97	12.00	
DINNER	16	10	2	28
	16.87	9.38	1.75	
	0.0449	0.041	0.0357	
	4.00	2.50	0.50	7.00
	57.14	35.71	7.14	
	6.64	7.46	8.00	
LUNCH	100	62	12	174
	104.83	58.29	10.875	
	0.223	0.2361	0.1164	
	25.00	15.50	3.00	43.50
	57.47	35.63	6.90	
	41.49	46.27	48.00	
WEEK END	69	54	8	131
	78.927	43.885	8.1875	
	1.2487	2.3314	0.0043	
	17.25	13.50	2.00	32.75
	52.67	41.22	6.11	
	28.63	40.30	32.00	
Total	241	134	25	400
	60.25	33.50	6.25	100.00

Frequency Missing = 34

STATISTICS FOR TABLE OF COLLTIME BY SANIT3

Statistic	DF	Value	Prob
Chi-Square	6	19.968	0.003

TABLE OF COLLTIME BY SANIT4

COLLTIME	SANIT4			
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	2	3	4	Total
BREAKFST	47	12	7	66
	30.844	23.879	11.276	
	8.4622	5.9097	1.6217	
	11.81	3.02	1.76	16.58
	71.21	18.18	10.61	
	25.27	8.33	10.29	
DINNER	9	16	3	28
	13.085	10.131	4.7839	
	1.2755	3.4005	0.6652	
	2.26	4.02	0.75	7.04
	32.14	57.14	10.71	
	4.84	11.11	4.41	
LUNCH	79	60	34	173
	80.849	62.593	29.558	
	0.0423	0.1074	0.6676	
	19.85	15.08	8.54	43.47
	45.66	34.68	19.65	
	42.47	41.67	50.00	
WEEK END	51	56	24	131
	61.221	47.397	22.382	
	1.7065	1.5615	0.117	
	12.81	14.07	6.03	32.91
	38.93	42.75	18.32	
	27.42	38.89	35.29	
Total	186	144	68	398
	46.73	36.18	17.09	100.00

Frequency Missing = 36

Statistic	DF	Value	Prob
Chi-Square	6	25.537	0.000

TABLE OF COLLTIME BY ETHNIC

COLLTIME / ETHNIC	1	4	6	Total
BREAKFST	46	12	6	64
	46.561	9.1429	8.2963	
	0.0068	0.8929	0.6356	
	12.17	3.17	1.59	16.93
	71.87	18.75	9.38	
	16.73	22.22	12.24	
DINNER	17	2	4	23
	16.733	3.2857	2.9815	
	0.0043	0.5031	0.3479	
	4.50	0.53	1.06	6.08
	73.91	8.70	17.39	
	6.18	3.70	8.16	
LUNCH	135	14	13	162
	117.86	23.143	21	
	2.4935	3.612	3.0476	
	35.71	3.70	3.44	42.86
	83.33	8.64	8.02	
	49.09	25.93	26.53	
WEEK END	77	26	26	129
	93.849	18.429	16.722	
	3.025	3.1107	5.1475	
	20.37	6.88	6.88	34.13
	59.69	20.16	20.16	
	28.00	48.15	53.06	
Total	275	54	49	378
	72.75	14.29	12.96	100.00

Frequency Missing = 56

STATISTICS FOR TABLE OF COLLTIME BY ETHNIC

Statistic	DF	Value	Prob
Chi-Square	6	22.827	0.001

TABLE OF COLLTIME BY EDUC

COLLTIME	EDUC				
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	1	3	5	6	Total
BREAKFST	18	24	14	9	65
	16.073	22.432	17.663	8.8315	
	0.2309	0.1096	0.7597	0.0032	
	4.89	6.52	3.80	2.45	17.66
	27.69	36.92	21.54	13.85	
	19.78	18.90	14.00	18.00	
DINNER	3	7	4	3	17
	4.2038	5.8668	4.6196	2.3098	
	0.3447	0.2189	0.0831	0.2063	
	0.82	1.90	1.09	0.82	4.62
	17.65	41.18	23.53	17.65	
	3.30	5.51	4.00	6.00	
LUNCH	37	50	50	21	158
	39.071	54.527	42.935	21.467	
	0.1097	0.3759	1.1626	0.0102	
	10.05	13.59	13.59	5.71	42.93
	23.42	31.65	31.65	13.29	
	40.66	39.37	50.00	42.00	
WEEK END	33	46	32	17	128
	31.652	44.174	34.783	17.391	
	0.0574	0.0755	0.2226	0.0088	
	8.97	12.50	8.70	4.62	34.78
	25.78	35.94	25.00	13.28	
	36.26	36.22	32.00	34.00	
Total	91	127	100	50	368
	24.73	34.51	27.17	13.59	100.00

Frequency Missing = 66

STATISTICS FOR TABLE OF COLLTIME BY EDUC

Statistic	DF	Value	Prob
Chi-Square	9	3.979	0.913

TABLE OF COLLTIME BY POSIT

COLLTIME	POSIT				
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	1	2	3	4	Total
BREAKFST	4	2	15	15	65
	3.5921	4.7895	13.513	16.25	
	0.0463	1.6246	0.1636	0.0962	
	1.05	0.53	3.95	3.95	17.11
	6.15	3.08	23.08	23.08	
	19.05	7.14	18.99	15.79	
DINNER	0	2	4	6	22
	1.2158	1.6211	4.5737	5.5	
	1.2158	0.0886	0.072	0.0455	
	0.00	0.53	1.05	1.58	5.79
	0.00	9.09	18.18	27.27	
	0.00	7.14	5.06	6.32	
LUNCH	7	16	21	58	164
	9.0632	12.084	34.095	41	
	0.4697	1.2689	5.0293	7.0488	
	1.84	4.21	5.53	15.26	43.16
	4.27	9.76	12.80	35.37	
	33.33	57.14	26.58	61.05	
WEEK END	10	8	39	16	129
	7.1289	9.5053	26.818	32.25	
	1.1563	0.2384	5.5332	8.188	
	2.63	2.11	10.26	4.21	33.95
	7.75	6.20	30.23	12.40	
	47.62	28.57	49.37	16.84	
Total	21	28	79	95	380
	5.53	7.37	20.79	25.00	100.00

(Continued)

TABLE OF COLLTIME BY POSIT

COLLTIME	POSIT				
Frequency / Expected / Cell Chi-Square / Percent / Row Pct / Col Pct	5	6	7	8	Total
BREAKFST	9	3	2	15	65
	12.316	5.6447	2.3947	6.5	
	0.8927	1.2391	0.0651	11.115	
	2.37	0.79	0.53	3.95	17.11
	13.85	4.62	3.08	23.08	
	12.50	9.09	14.29	39.47	
DINNER	4	4	0	2	22
	4.1684	1.9105	0.8105	2.2	
	0.0068	2.2852	0.8105	0.0182	
	1.05	1.05	0.00	0.53	5.79
	18.18	18.18	0.00	9.09	
	5.56	12.12	0.00	5.26	
LUNCH	27	16	6	13	164
	31.074	14.242	6.0421	16.4	
	0.5341	0.217	0.0003	0.7049	
	7.11	4.21	1.58	3.42	43.16
	16.46	9.76	3.66	7.93	
	37.50	48.48	42.86	34.21	
WEEK END	32	10	6	8	129
	24.442	11.203	4.7526	12.9	
	2.337	0.1291	0.3274	1.8612	
	8.42	2.63	1.58	2.11	33.95
	24.81	7.75	4.65	6.20	
	44.44	30.30	42.86	21.05	
Total	72	33	14	38	380
	18.95	8.68	3.68	10.00	100.00

Frequency Missing = 54

STATISTICS FOR TABLE OF COLLTIME BY POSIT

Statistic	DF	Value	Prob
Chi-Square	21	54.829	0.000

APPENDIX G

RESULTS OF CHI SQUARE ANALYSIS
DEMOGRAPHIC DATA

GENDER	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	100	24.3	100	24.3
2	311	75.7	411	100.0

Frequency Missing = 23

AGE	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	32	7.7	32	7.7
2	86	20.7	118	28.4
3	139	33.4	257	61.8
4	84	20.2	341	82.0
5	39	9.4	380	91.3
6	36	8.7	416	100.0

Frequency Missing = 18

SHIFT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	275	70.9	275	70.9
2	71	18.3	346	89.2
3	42	10.8	388	100.0

Frequency Missing = 46

ETHNIC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	298	72.9	298	72.9
2	16	3.9	314	76.8
3	15	3.7	329	80.4
4	54	13.2	383	93.6
5	6	1.5	389	95.1
6	20	4.9	409	100.0

Frequency Missing = 25

EDUC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	72	18.1	72	18.1
2	32	8.1	104	26.2
3	95	23.9	199	50.1
4	40	10.1	239	60.2
5	106	26.7	345	86.9
6	30	7.6	375	94.5
7	22	5.5	397	100.0

Frequency Missing = 37

POSIT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	21	5.1	21	5.1
2	28	6.8	49	11.9
3	79	19.2	128	31.1
4	95	23.1	223	54.3
5	72	17.5	295	71.8
6	33	8.0	328	79.8
7	44	10.7	372	90.5
8	31	7.5	403	98.1
9	8	1.9	411	100.0

Frequency Missing = 23

APPENDIX H

RESULTS OF CHI SQUARE ANALYSIS
Ho1 (LIKERT SCALE 1,2,3,4,5)

1 = Very Good
2 = Good
3 = Fair
4= Poor
5 = Very Poor

Food Quality
Quality of the food?

Frequency / Row Pct	1	2	3	4	5	Total
POST	28	193	164	36	11	432
	6.48	44.68	37.96	8.33	2.55	
PRE	7	70	50	9	0	136
	5.15	51.47	36.76	6.62	0.00	
Total	35	263	214	45	11	568

Frequency Missing = 3

Statistic	DF	Value	Prob
Chi-Square	4	5.217	0.266
Likelihood Ratio Chi-Square	4	7.779	0.100
Mantel-Haenszel Chi-Square	1	1.908	0.167
Phi Coefficient		0.096	
Contingency Coefficient		0.095	
Cramer's V		0.096	

Effective Sample Size = 568
Frequency Missing = 3

Food Quality
The flavor of the food?

Frequency / Row Pct	1	2	3	4	5	Total
POST	28	172	173	50	8	431
	6.50	39.91	40.14	11.60	1.86	
PRE	11	64	55	6	0	136
	8.09	47.06	40.44	4.41	0.00	
Total	39	236	228	56	8	567

Frequency Missing = 4

Statistic	DF	Value	Prob
Chi-Square	4	9.588	0.048
Likelihood Ratio Chi-Square	4	12.414	0.015
Mantel-Haenszel Chi-Square	1	7.005	0.008
Phi Coefficient		0.130	
Contingency Coefficient		0.129	
Cramer's V		0.130	

Effective Sample Size = 567
Frequency Missing = 4

Food Quality
The temperature of the food?

Frequency / Row Pct	1	2	3	4	5	Total
POST	23	169	161	60	17	430
	5.35	39.30	37.44	13.95	3.95	
PRE	10	63	49	11	1	134
	7.46	47.01	36.57	8.21	0.75	
Total	33	232	210	71	18	564

Frequency Missing = 7

Statistic	DF	Value	Prob
Chi-Square	4	8.249	0.083
Likelihood Ratio Chi-Square	4	9.510	0.050
Mantel-Haenszel Chi-Square	1	7.552	0.006
Phi Coefficient		0.121	
Contingency Coefficient		0.120	
Cramer's V		0.121	

Effective Sample Size = 564
Frequency Missing = 7

Food Quality
The appearance of the food?

Frequency / Row Pct	1	2	3	4	5	Total
POST	40	204	146	35	5	430
	9.30	47.44	33.95	8.14	1.16	
PRE	26	71	34	4	1	136
	19.12	52.21	25.00	2.94	0.74	
Total	66	275	180	39	6	566

Frequency Missing = 5

Statistic	DF	Value	Prob
Chi-Square	4	15.854	0.003
Likelihood Ratio Chi-Square	4	15.899	0.003
Mantel-Haenszel Chi-Square	1	14.314	0.000
Phi Coefficient		0.167	
Contingency Coefficient		0.165	
Cramer's V		0.167	

Effective Sample Size = 566
Frequency Missing = 5

Food Quality
The variety of food choices available?

Frequency / Row Pct	1	2	3	4	5	Total
POST	22	122	149	106	30	429
	5.13	28.44	34.73	24.71	6.99	
PRE	16	51	47	17	4	135
	11.85	37.78	34.81	12.59	2.96	
Total	38	173	196	123	34	564

Frequency Missing = 7

Statistic	DF	Value	Prob
Chi-Square	4	19.489	0.001
Likelihood Ratio Chi-Square	4	19.867	0.001
Mantel-Haenszel Chi-Square	1	18.461	0.000
Phi Coefficient		0.186	
Contingency Coefficient		0.183	
Cramer's V		0.186	

Effective Sample Size = 564
Frequency Missing = 7

Value
The perceived value of the meal you purchased?

Frequency / Row Pct	1	2	3	4	5	Total
POST	43	134	183	54	17	431
	9.98	31.09	42.46	12.53	3.94	
PRE	22	71	25	11	4	133
	16.54	53.38	18.80	8.27	3.01	
Total	65	205	208	65	21	564

Frequency Missing = 7

Statistic	DF	Value	Prob
Chi-Square	4	34.966	0.000
Likelihood Ratio Chi-Square	4	36.053	0.000
Mantel-Haenszel Chi-Square	1	18.935	0.000
Phi Coefficient		0.249	
Contingency Coefficient		0.242	
Cramer's V		0.249	

Effective Sample Size = 564
Frequency Missing = 7

Service
The speed of our service?
Frequency|

Row Pct	1	2	3	4	5	Total
POST	52	130	121	72	55	430
	12.09	30.23	28.14	16.74	12.79	
PRE	32	54	38	11	2	137
	23.36	39.42	27.74	8.03	1.46	
Total	84	184	159	83	57	567

Frequency Missing = 4

Statistic	DF	Value	Prob
Chi-Square	4	30.265	0.000
Likelihood Ratio Chi-Square	4	35.533	0.000
Mantel-Haenszel Chi-Square	1	29.680	0.000
Phi Coefficient		0.231	
Contingency Coefficient		0.225	
Cramer's V		0.231	

Effective Sample Size = 567
Frequency Missing = 4

Service
The professional appearance of our personnel?
Frequency|

Row Pct	1	2	3	4	5	Total
POST	62	207	131	28	3	431
	14.39	48.03	30.39	6.50	0.70	
PRE	38	72	23	3	0	136
	27.94	52.94	16.91	2.21	0.00	
Total	100	279	154	31	3	567

Frequency Missing = 4

Statistic	DF	Value	Prob
Chi-Square	4	22.625	0.000
Likelihood Ratio Chi-Square	4	23.738	0.000
Mantel-Haenszel Chi-Square	1	22.043	0.000
Phi Coefficient		0.200	
Contingency Coefficient		0.196	
Cramer's V		0.200	

Effective Sample Size = 567
Frequency Missing = 4

Sanitation
The general appearance of the dining area?
Frequency|

Row Pct	1	2	3	4	5	Total
POST	70	206	132	17	6	431
	16.24	47.80	30.63	3.94	1.39	
PRE	39	65	29	3	0	136
	28.68	47.79	21.32	2.21	0.00	
Total	109	271	161	20	6	567

Frequency Missing = 4

Statistic	DF	Value	Prob
Chi-Square	4	14.245	0.007
Likelihood Ratio Chi-Square	4	15.223	0.004
Mantel-Haenszel Chi-Square	1	13.209	0.000
Phi Coefficient		0.159	
Contingency Coefficient		0.157	
Cramer's V		0.159	

Effective Sample Size = 567
Frequency Missing = 4
WARNING: 30% of the cells have expected counts less than 5. Chi-Square may not be a valid test.

Sanitation
The cleanliness of trays, silverware, and plates?

Frequency|

Row Pct	1	2	3	4	5	Total
POST	64	201	140	22	4	431
	14.85	46.64	32.48	5.10	0.93	
PRE	28	66	37	5	0	136
	20.59	48.53	27.21	3.68	0.00	
Total	92	267	177	27	4	567

Frequency Missing = 4

Statistic	DF	Value	Prob
Chi-Square	4	4.804	0.308
Likelihood Ratio Chi-Square	4	5.680	0.224
Mantel-Haenszel Chi-Square	1	4.354	0.037
Phi Coefficient		0.092	
Contingency Coefficient		0.092	
Cramer's V		0.092	

Effective Sample Size = 567
Frequency Missing = 4

Sanitation
The cleanliness of the serving and dining area?

Frequency|

Row Pct	1	2	3	4	5	Total
POST	55	207	142	21	6	431
	12.76	48.03	32.95	4.87	1.39	
PRE	37	70	27	2	0	136
	27.21	51.47	19.85	1.47	0.00	
Total	92	277	169	23	6	567

Frequency Missing = 4

Statistic	DF	Value	Prob
Chi-Square	4	24.334	0.000
Likelihood Ratio Chi-Square	4	25.509	0.000
Mantel-Haenszel Chi-Square	1	23.341	0.000
Phi Coefficient		0.207	
Contingency Coefficient		0.203	
Cramer's V		0.207	

Effective Sample Size = 567
Frequency Missing = 4

APPENDIX I

RESULTS OF CHI SQUARE ANALYSIS
Ho1 (LIKERT SCALE CONDENSED TO 2,3,4)

2 = Very Good (1) and Good (2) combined
3 = Fair
4 = Poor (4) and Very Poor (5) combined

TABLE OF DS BY FD_QUAL1

DS FD_QUAL1

Frequency / Row Pct	2	3	4	Total
POST	221	164	47	432
	51.16	37.96	10.88	
PRE	77	50	9	136
	56.62	36.76	6.62	
Total	298	214	56	568

Frequency Missing = 3

STATISTICS FOR TABLE OF DS BY FD_QUAL1

Statistic	DF	Value	Prob
Chi-Square	2	2.533	0.282

DS FD_QUAL2

Frequency / Row Pct	2	3	4	Total
POST	200	173	58	431
	46.40	40.14	13.46	
PRE	75	55	6	136
	55.15	40.44	4.41	
Total	275	228	64	567

Frequency Missing = 4

STATISTICS FOR TABLE OF DS BY FD_QUAL2

Statistic	DF	Value	Prob
Chi-Square	2	9.125	0.010

TABLE OF DS BY FD_QUAL3

DS FD_QUAL3

Frequency / Row Pct	2	3	4	Total
POST	192	161	77	430
	44.65	37.44	17.91	
PRE	73	49	12	134
	54.48	36.57	8.96	
Total	265	210	89	564

Frequency Missing = 7

STATISTICS FOR TABLE OF DS BY FD_QUAL3

Statistic	DF	Value	Prob
Chi-Square	2	7.309	0.026

TABLE OF DS BY FD_QUAL4

DS FD_QUAL4

Frequency / Row Pct	2	3	4	Total
POST	244	146	40	430
	56.74	33.95	9.30	
PRE	97	34	5	136
	71.32	25.00	3.68	
Total	341	180	45	566

Frequency Missing = 5

STATISTICS FOR TABLE OF DS BY FD_QUAL4

Statistic	DF	Value	Prob
Chi-Square	2	10.363	0.006

TABLE OF DS BY FD_QUAL5

DS FD_QUAL5

Frequency / Row Pct	2	3	4	Total
POST	144	149	136	429
	33.57	34.73	31.70	
PRE	67	47	21	135
	49.63	34.81	15.56	
Total	211	196	157	564

Frequency Missing = 7

STATISTICS FOR TABLE OF DS BY FD_QUAL5

Statistic	DF	Value	Prob
Chi-Square	2	16.699	0.000

TABLE OF DS BY FD_VALU1

DS FD_VALU1

Frequency / Row Pct	2	3	4	Total
POST	177	183	71	431
	41.07	42.46	16.47	
PRE	93	25	15	133
	69.92	18.80	11.28	
Total	270	208	86	564

Frequency Missing = 7

STATISTICS FOR TABLE OF DS BY FD_VALU1

Statistic	DF	Value	Prob
Chi-Square	2	34.910	0.000

TABLE OF DS BY SERVIC3

DS SERVIC3

Frequency / Row Pct	2	3	4	Total
POST	182 42.33	121 28.14	127 29.53	430
PRE	86 62.77	38 27.74	13 9.49	137
Total	268	159	140	567

Frequency Missing = 4

STATISTICS FOR TABLE OF DS BY SERVIC3

Statistic	DF	Value	Prob
Chi-Square	2	26.106	0.000

TABLE OF DS BY SERVIC4

DS SERVIC4

Frequency / Row Pct	2	3	4	Total
POST	269 62.41	131 30.39	31 7.19	431
PRE	110 80.88	23 16.91	3 2.21	136
Total	379	154	34	567

Frequency Missing = 4

Statistic	DF	Value	Prob
Chi-Square	2	16.482	0.000

TABLE OF DS BY SANIT1

DS SANIT1

Frequency / Row Pct	2	3	4	Total
POST	276 64.04	132 30.63	23 5.34	431
PRE	104 76.47	29 21.32	3 2.21	136
Total	380	161	26	567

Frequency Missing = 4

STATISTICS FOR TABLE OF DS BY SANIT1

Statistic	DF	Value	Prob
Chi-Square	2	7.745	0.021

TABLE OF DS BY SANIT2

DS SANIT2

Frequency / Row Pct	2	3	4	Total
POST	265	140	26	431
	61.48	32.48	6.03	
PRE	94	37	5	136
	69.12	27.21	3.68	
Total	359	177	31	567

Frequency Missing = 4

STATISTICS FOR TABLE OF DS BY SANIT2

Statistic	DF	Value	Prob
Chi-Square	2	2.923	0.232

TABLE OF DS BY SANIT3

DS SANIT3

Frequency / Row Pct	2	3	4	Total
POST	262	142	27	431
	60.79	32.95	6.26	
PRE	107	27	2	136
	78.68	19.85	1.47	
Total	369	169	29	567

Frequency Missing = 4

STATISTICS FOR TABLE OF DS BY SANIT3

Statistic	DF	Value	Prob
Chi-Square	2	15.674	0.000

APPENDIX J

RESULTS OF CHI SQUARE ANALYSIS
Ho2

0 = No
1 = Yes

TABLE OF DS BY POULTRY

DS POULTRY

Frequency Row Pct	0	1	Total
POST	148 35.32	271 64.68	419
PRE	23 21.70	83 78.30	106
Total	171	354	525

Frequency Missing = 19

Statistic	DF	Value	Prob
Chi-Square	1	7.150	0.007

TABLE OF DS BY BEEF

DS BEEF

Frequency Row Pct	0	1	Total
POST	147 35.08	272 64.92	419
PRE	45 42.45	61 57.55	106
Total	192	333	525

Frequency Missing = 19

Statistic	DF	Value	Prob
Chi-Square	1	1.981	0.159

TABLE OF DS BY SEAFOOD

DS SEAFOOD

Frequency Row Pct	0	1	Total
POST	326 77.80	93 22.20	419
PRE	79 74.53	27 25.47	106
Total	405	120	525

Frequency Missing = 19

Statistic	DF	Value	Prob
Chi-Square	1	0.515	0.473

TABLE OF DS BY PORK

DS PORK

Frequency / Row Pct	0	1	Total
POST	306	113	419
	73.03	26.97	
PRE	88	18	106
	83.02	16.98	
Total	394	131	525

Frequency Missing = 19

Statistic	DF	Value	Prob
Chi-Square	1	4.507	0.034

TABLE OF DS BY VEGGIE

DS VEGGIE

Frequency / Row Pct	0	1	Total
POST	281	138	419
	67.06	32.94	
PRE	68	38	106
	64.15	35.85	
Total	349	176	525

Frequency Missing = 19

Statistic	DF	Value	Prob
Chi-Square	1	0.322	0.570

TABLE OF DS BY GRILL

DS GRILL

Frequency / Row Pct	0	1	Total
POST	231	196	427
	54.10	45.90	
PRE	77	33	110
	70.00	30.00	
Total	308	229	537

Frequency Missing = 7

Statistic	DF	Value	Prob
Chi-Square	1	9.043	0.003

TABLE OF DS BY PIZZA

DS PIZZA

Frequency / Row Pct	0	1	Total
POST	298 69.79	129 30.21	427
PRE	91 82.73	19 17.27	110
Total	389	148	537

Frequency Missing = 7

Statistic	DF	Value	Prob
Chi-Square	1	7.334	0.007

TABLE OF DS BY SPECIALT

DS SPECIALT

Frequency / Row Pct	0	1	Total
POST	313 73.30	114 26.70	427
PRE	85 77.27	25 22.73	110
Total	398	139	537

Frequency Missing = 7

Statistic	DF	Value	Prob
Chi-Square	1	0.719	0.397

TABLE OF DS BY DELI

DS DELI

Frequency / Row Pct	0	1	Total
POST	267 62.53	160 37.47	427
PRE	73 66.36	37 33.64	110
Total	340	197	537

Frequency Missing = 7

Statistic	DF	Value	Prob
Chi-Square	1	0.554	0.457

TABLE OF DS BY HOTENTRE

DS HOTENTRE

Frequency Row Pct	0	1	Total
POST	162 37.94	265 62.06	427
PRE	49 44.55	61 55.45	110
Total	211	326	537

Frequency Missing = 7

Statistic	DF	Value	Prob
Chi-Square	1	1.600	0.206

TABLE OF DS BY FASTFOOD

DS FASTFOOD

Frequency Row Pct	0	1	Total
POST	313 73.30	114 26.70	427
PRE	88 80.00	22 20.00	110
Total	401	136	537

Frequency Missing = 7

Statistic	DF	Value	Prob
Chi-Square	1	2.075	0.150

TABLE OF DS BY SALAD

DS SALAD

Frequency Row Pct	0	1	Total
POST	168 39.34	259 60.66	427
PRE	32 29.09	78 70.91	110
Total	200	337	537

Frequency Missing = 7

Statistic	DF	Value	Prob
Chi-Square	1	3.934	0.047

TABLE OF DS BY OTHER

DS OTHER

Frequency / Row Pct	0	1	Total
POST	380 88.99	47 11.01	427
PRE	88 80.00	22 20.00	110
Total	468	69	537

Frequency Missing = 7

Statistic	DF	Value	Prob
Chi-Square	1	6.317	0.012

TABLE OF DS BY FOODBUFF

DS FOODBUFF

Frequency / Row Pct	0	1	Total
POST	47 11.14	375 88.86	422
PRE	12 11.43	93 88.57	105
Total	59	468	527

Frequency Missing = 17

Statistic	DF	Value	Prob
Chi-Square	1	0.007	0.933

TABLE OF DS BY LOWFAT

DS LOWFAT

Frequency / Row Pct	0	1	Total
POST	136 32.38	284 67.62	420
PRE	16 16.49	81 83.51	97
Total	152	365	517

Frequency Missing = 27

Statistic	DF	Value	Prob
Chi-Square	1	9.581	0.002

TABLE OF DS BY LOWCAL

DS LOWCAL

Frequency / Row Pct	0	1	Total
POST	229 54.52	191 45.48	420
PRE	57 58.76	40 41.24	97
Total	286	231	517

Frequency Missing = 27

Statistic	DF	Value	Prob
Chi-Square	1	0.573	0.449

TABLE OF DS BY LOWNACL

DS LOWNACL

Frequency / Row Pct	0	1	Total
POST	321 76.43	99 23.57	420
PRE	84 86.60	13 13.40	97
Total	405	112	517

Frequency Missing = 27

Statistic	DF	Value	Prob
Chi-Square	1	4.802	0.028

TABLE OF DS BY HEART

DS HEART

Frequency / Row Pct	0	1	Total
POST	221 52.62	199 47.38	420
PRE	56 57.73	41 42.27	97
Total	277	240	517

Frequency Missing = 27

Statistic	DF	Value	Prob
Chi-Square	1	0.828	0.363

TABLE OF DS BY NUTINF

DS NUTINF

Frequency| Row Pct	0	1	Total
POST	120	304	424
	28.30	71.70	
PRE	16	93	109
	14.68	85.32	
Total	136	397	533

Frequency Missing = 11

Statistic	DF	Value	Prob
Chi-Square	1	8.467	0.004

TABLE OF DS BY BREAKFS

DS BREAKFS

Frequency| Row Pct	0	1	Total
POST	291	136	427
	68.15	31.85	
PRE	51	56	107
	47.66	52.34	
Total	342	192	534

Frequency Missing = 10

Statistic	DF	Value	Prob
Chi-Square	1	15.594	0.000

TABLE OF DS BY LUNCH

DS LUNCH

Frequency| Row Pct	0	1	Total
POST	101	326	427
	23.65	76.35	
PRE	13	94	107
	12.15	87.85	
Total	114	420	534

Frequency Missing = 10

Statistic	DF	Value	Prob
Chi-Square	1	6.744	0.009

TABLE OF DS BY DINNER

DS	DINNER		
Frequency / Row Pct	0	1	Total
POST	345	82	427
	80.80	19.20	
PRE	93	14	107
	86.92	13.08	
Total	438	96	534

Frequency Missing = 10

Statistic	DF	Value	Prob
Chi-Square	1	2.173	0.140

TABLE OF DS BY AMBREAK

DS AMBREAK

Frequency / Row Pct	0	1	Total
POST	368	59	427
	86.18	13.82	
PRE	96	11	107
	89.72	10.28	
Total	464	70	534

Frequency Missing = 10

Statistic	DF	Value	Prob
Chi-Square	1	0.940	0.332

TABLE OF DS BY PMBREAK

DS PMBREAK

Frequency / Row Pct	0	1	Total
POST	359	68	427
	84.07	15.93	
PRE	101	6	107
	94.39	5.61	
Total	460	74	534

Frequency Missing = 10

Statistic	DF	Value	Prob
Chi-Square	1	7.630	0.006

APPENDIX K

COMMENTS

COMMENTS

01 Salad bar needs to be two sided
02 Visitors interfere with employees' 30 minute lunch breaks
03 Variety
04 Meats - tough, dry
05 Deli - Complaints about the new deli sandwiches
06 The lines are too long, you need more help, it takes too long to get through
07 Restocking complaints (cups, condiments, trays, silverware, napkins, condiments)
08 Cups - they sweat too much, they are too thin
09 Prices
10 Compliments about the service
11 Food quality - temperature, doneness, consistency, etc.
12 Tea
13 Menu availability - the advertised menu isn't always what is available
14 I miss the food court
15 Nutrition information needs to be posted regularly
16 Not enough cashiers
17 Lids don't fit cups
18 Coffee is too strong
19 General dissatisfaction with service
20 Rude food service employees
21 Promptness - open on time, have all of the food available
22 Mashed potatoes - dislike them, want real ones
23 McDonalds - we want it
24 Sanitation - floors, counters, spills
25 Too much fat, grease, sauce
26 Eggs - we want our fried eggs back on the breakfast menu
27 Prices are not consistent
28 Fat Free/Low Fat mayonnaise, cream cheese, salad dressings
29 Management is not visible
30 Deli Bar - we want the self serve deli back
31 Basic Foods -we want meat & potatoes, comfort foods
32 Portion sizes - too small, not consistent
33 Decorations - flowers, decorations - are in the way, have not improved the service
34 2nd Shift - lack of consistency
35 China vs. Paper - too much paper, coffee better in ceramic cup
36 Daily Specials - we want them
37 Crackers next to the soup would be helpful
38 Grab & Go Sandwiches - chips get soggy
39 More ethnic foods would be good
40 Weekly menu - not available for us to know what is on the menu
41 Flavor - food is bland
42 The hospital needs new towels
43 3rd shift - quality/variety

44 3rd shift wants salad bar
45 3rd shift wants soup
46 Food Safety concerns
47 3rd shift - Cafeteria employees are very friendly and helpful
48 Don't charge for butter, croutons, crackers
49 Too many nuts in the food
50 Tea is too expensive
51 Hot food on salad bar looks bad
52 Friendly Staff
53 Salad bar needs pudding and jello
54 Crackers are too expensive - they used to be 4/.05, now they are 2/.05
55 The soups are good
56 The fat free muffins are terrible
57 Cafeteria employees cannot communicate effectively
58 Tray Return breaks down too much
59 Condiment Area - complaints about location, not enough space or variety
60 Complaints about Mrs. Fields cart - too much fat in the products
61 Payroll deduction would be nice
62 Salad bar is too expensive
63 Weekend food needs improvement
64 Weekend breakfast complaints
65 Weekend food quality
66 Fruit is often rotten, not rotated
67 Need more cash registers
68 Checks should be accepted
69 Refills should be available
70 ½ orders of entrees and ½ Sandwiches should be available
71 We want two soups (cream base and broth base) at night and on weekends
72 Food is too greasy
73 No choices for vegetarians on 3rd shift
74 Exhibition Cooking
75 Low fat soup should be available
76 Need more than a one week menu - its the same each day each week
77 Request for cobbler on salad bar
78 Overcooked/mushy vegetables
79 Request low fat bakery products
80 Prices are good for employees but too high for visitors
81 Pastries don't taste fresh
82 I would pay more for better food
83 Cream Chipped Beef is great - have it more often
84 Food Court is too expensive
85 Request for high fiber vegetables - brussel sprouts, turnip greens, cabbage, spinach
86 Concerns re: the new management and the changes that will take place
87 Request for Chinese food
88 Request for frozen yogurt on evenings and weekends

89 Complaints about hours of operation - 8:00 p.m. is too early to close the cafeteria
90 Request for more fruit on salad bar
91 Compliments about the new look
92 Need better coffee
93 Would like outdoor burgers and hot dogs more often

APPENDIX L

COMENTS (OTHER OPEN ENDED QUESTIONS)

Other Foods You Enjoy

01 Deli Bar
02 Soup
03 Mexican
04 Oriental
05 Vegetables
06 Low Fat/Low Cal
07 Quick
08 Buffet
09 Stuffed Jalapenos
10 Daily Specials
11 Pasta Salads
12 Low Fat/Fat Free/Sugar Free Frozen Yogurt
13 Candy Bars
14 Ice Cream
15 Pizza Hut
16 Quality
17 NY Bagels
18 Desserts
19 Fries/Onion Rings
20 Casseroles
21 Vegetarian
22 Baked Potatoes
23 Ethnic Foods

BEVERAGES

01 Fresher tea
02 Dr. Pepper/Diet Dr. Pepper
03 FF Cappuccino
04 Lemonade
05 Alcoholic
06 More Juice
07 Coke/Diet Coke
08 Low Cal Lemonade
09 More Diet
10 More Caffeine Free
11 Larger Cups (same as 25)
12 Iced/Frozen Drinks
13 Cinnamon Tea (same as 26)
14 Canned Sodas
15 7-Up, Sprite
16 Cream Soda
17 Hot Tea
18 Cherry Pepsi
19 More than one fountain is needed
20 Spring Water
21 Bottled Tea - non flavored/non-sweetened
22 Crystal Lite
23 Gourmet Coffee
24 Cherry Limeade
25 Larger Cups (same as 11)
26 Specialty Teas (same as 13)
27 Hot Cocoa
28 Ocean Spray

OTHER FOODS

1 Normal Vegetables
02 Low-cal dressing
03 FF/LF/SF frozen yogurt
04 Lentils/Legumes
05 Sweet Potatoes
06 Vegetables without Butter
07 Harvest Grill type foods
08 Grilled or Hot Sandwiches (burgers, reubens, grilled cheese, BLT, etc.)
09 Deli Bar
10 Soup/Stew
11 Chicken Strips we used to have
12 Mexican
13 Fries/Onion Rings
14 Chinese
15 Fried Meats (chicken, catfish,)
16 Real eggs - fried eggs at breakfast
17 Desserts
18 Vegetarian
19 Plain Meats
20 Chili
21 Fruit
22 Quality
23 Pizza Hut
24 Grilled Vegetables/Steamed Vegetables
25 Casseroles
26 Real Potatoes
27 Italian
28 Vegetables
29 Pasta
30 Roast Beef/Chicken Breast (Same as 19)
31 3rd Shift - Needs more choices
32 Baked Potato Bar
33 Steak
34 Fish
35 Hot & Spicy
36 Rice
37 2 Soups/Day
38 Cheese sauce for baked potato bar
39 Low Fat Baked Potato Bar toppings
40 Sushi
41 Pizza
42 Organic
43 Low Fat Bakery Products

44 Fruit Salad
45 Cookies, Brownies
46 ½ Sandwich from deli
47 ½ Grapefruit
48 Healthy snacks
49 Angel Food Cake
50 Meat salads on deli bar
51 Lasagna
52 Tapioca
53 Comfort Foods (same as 19)
54 BBQ
55 Ice Cream Novelties
56 Bagels
57 Popcorn
58 Creamed Chipped Beef
59 Vegetarian Burgers
60 Beets
61 Sherbert
62 Fried okra
63 Ice Cream
64 Low Fat/Fat Free
65 Seafood
66 Cereal
67 Animal Crackers

SALAD BAR

01 Lettuce - freshness, variety, spinach, romaine, radichio, endive etc.
02 Bread
03 Meat Salads/Pimento Cheese
04 Broccoli & Cheese sauce for potato bar
05 LF/FF Dressings
06 Increase Variety
07 Cottage Cheese
08 Fruit
09 Sunflower Seeds
10 Raisins
11 Pickled Items (pickles, okra, olives, etc.)
12 Chicken
13 Meat toppings
14 Desserts (puddings, jellos)
15 Eggs (boiled, chopped)
16 Pasta
17 Tomatoes
18 Increase Fresh Vegetables
19 Vinegar & Oil
20 LF Cheese
21 Peas
22 Cheese
23 Mushrooms (fresh, marinated)
24 Hot Entrees
25 Less Oils on salads
26 Beets
27
28 Poppers
29 Croutons
30 Baked Potatoes
31 Soup
32 Sprouts
33 3rd Shift wants a Salad Bar
34 3rd Shift wants Hot Food
35 WE LIKE THE CHUNKY CHICKEN RICE & RAISIN SALAD
36 Newman Dressing
37 No Carrots in the lettuce please
38 Organic produce
39 Fruit Salads
40 Cold Salads
41 Bleu Cheese Dressing
42 Legumes
43 Bacon Bits
44 Apple Sauce

APPENDIX M

RESULTS OF CHI SQUARE ANALYSIS AND FREQUENCY DATA COMMENTS

FQ	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	235	73.0	235	73.0
1	87	27.0	322	100.0

VALU	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	309	96.0	309	96.0
1	13	4.0	322	100.0

SERV	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	169	52.5	169	52.5
1	153	47.5	322	100.0

SANIT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	315	97.8	315	97.8
1	7	2.2	322	100.0

OTHER	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	270	83.9	270	83.9
1	52	16.1	322	100.0

PRE-TEST/Survey A data.

COMM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	11	10.1	11	10.1
2	3	2.8	14	12.8
3	5	4.6	19	17.4
5	3	2.8	22	20.2
6	5	4.6	27	24.8
7	2	1.8	29	26.6
9	1	0.9	30	27.5
10	6	5.5	36	33.0
11	1	0.9	37	33.9
13	1	0.9	38	34.9
15	6	5.5	44	40.4
16	3	2.8	47	43.1
19	1	0.9	48	44.0
20	1	0.9	49	45.0
24	1	0.9	50	45.9
25	1	0.9	51	46.8
28	1	0.9	52	47.7
30	9	8.3	61	56.0
33	4	3.7	65	59.6
34	1	0.9	66	60.6
43	1	0.9	67	61.5
52	5	4.6	72	66.1
59	1	0.9	73	67.0
66	1	0.9	74	67.9
69	1	0.9	75	68.8
70	5	4.6	80	73.4
71	3	2.8	83	76.1
72	1	0.9	84	77.1
76	2	1.8	86	78.9
78	1	0.9	87	79.8
87	1	0.9	88	80.7
88	2	1.8	90	82.6
89	2	1.8	92	84.4
90	3	2.8	95	87.2
91	11	10.1	106	97.2
92	2	1.8	108	99.1
93	1	0.9	109	100.0

PRE-TEST/Retail Preference Survey

COMM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
2	1	2.4	1	2.4
3	9	21.4	10	23.8
6	2	4.8	12	28.6
9	1	2.4	13	31.0
10	1	2.4	14	33.3
11	1	2.4	15	35.7
13	1	2.4	16	38.1
15	7	16.7	23	54.8
24	1	2.4	24	57.1
25	2	4.8	26	61.9
43	1	2.4	27	64.3
63	1	2.4	28	66.7
70	1	2.4	29	69.0
72	1	2.4	30	71.4
75	1	2.4	31	73.8
76	2	4.8	33	78.6
78	3	7.1	36	85.7
79	1	2.4	37	88.1
80	1	2.4	38	90.5
82	1	2.4	39	92.9
83	1	2.4	40	95.2
84	1	2.4	41	97.6
86	1	2.4	42	100.0

BEVER	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	6	22.2	6	22.2
2	3	11.1	9	33.3
5	3	11.1	12	44.4
7	9	33.3	21	77.8
10	4	14.8	25	92.6
23	1	3.7	26	96.3
28	1	3.7	27	100.0

PRE-Test/Retail Preference

SALAD	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	24	20.0	24	20.0
2	1	0.8	25	20.8
3	9	7.5	34	28.3
5	3	2.5	37	30.8
6	2	1.7	39	32.5
7	4	3.3	43	35.8
8	20	16.7	63	52.5
9	2	1.7	65	54.2
10	5	4.2	70	58.3
11	5	4.2	75	62.5
13	3	2.5	78	65.0
14	3	2.5	81	67.5
16	4	3.3	85	70.8
18	13	10.8	98	81.7
20	1	0.8	99	82.5
21	2	1.7	101	84.2
22	4	3.3	105	87.5
23	1	0.8	106	88.3
24	1	0.8	107	89.2
26	1	0.8	108	90.0
32	1	0.8	109	90.8
39	3	2.5	112	93.3
40	4	3.3	116	96.7
42	2	1.7	118	98.3
43	1	0.8	119	99.2
44	1	0.8	120	100.0

Retail Preference

OTHERFD	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	2	2.9	2	2.9
3	4	5.9	6	8.8
8	1	1.5	7	10.3
9	1	1.5	8	11.8
10	4	5.9	12	17.6
12	9	13.2	21	30.9
14	10	14.7	31	45.6
15	1	1.5	32	47.1
21	3	4.4	35	51.5
23	1	1.5	36	52.9
24	1	1.5	37	54.4
27	7	10.3	44	64.7
29	2	2.9	46	67.6
30	1	1.5	47	69.1
32	1	1.5	48	70.6
36	1	1.5	49	72.1
43	1	1.5	50	73.5
45	2	2.9	52	76.5
53	1	1.5	53	77.9
54	2	2.9	55	80.9
55	1	1.5	56	82.4
56	2	2.9	58	85.3
57	1	1.5	59	86.8
58	1	1.5	60	88.2
60	1	1.5	61	89.7
61	1	1.5	62	91.2
62	1	1.5	63	92.6
63	1	1.5	64	94.1
64	1	1.5	65	95.6
67	1	1.5	66	97.1
76	1	1.5	67	98.5
85	1	1.5	68	100.0

POST-TEST/Customer Satisfaction Survey

COMM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	9	2.8	9	2.8
2	11	3.4	20	6.2
3	14	4.3	34	10.6
4	4	1.2	38	11.8
5	2	0.6	40	12.4
6	54	16.8	94	29.2
7	21	6.5	115	35.7
8	8	2.5	123	38.2
9	16	5.0	139	43.2
10	13	4.0	152	47.2
11	21	6.5	173	53.7
12	1	0.3	174	54.0
13	3	0.9	177	55.0
14	6	1.9	183	56.8
15	9	2.8	192	59.6
16	5	1.6	197	61.2
17	2	0.6	199	61.8
18	1	0.3	200	62.1
19	6	1.9	206	64.0
20	9	2.8	215	66.8
21	4	1.2	219	68.0
22	2	0.6	221	68.6
23	1	0.3	222	68.9
24	5	1.6	227	70.5
25	4	1.2	231	71.7
26	3	0.9	234	72.7
27	2	0.6	236	73.3
28	3	0.9	239	74.2
29	2	0.6	241	74.8
30	9	2.8	250	77.6
31	3	0.9	253	78.6
32	2	0.6	255	79.2
33	4	1.2	259	80.4
34	3	0.9	262	81.4
35	3	0.9	265	82.3
36	1	0.3	266	82.6
37	1	0.3	267	82.9
38	1	0.3	268	83.2
39	1	0.3	269	83.5
40	2	0.6	271	84.2
41	1	0.3	272	84.5
42	1	0.3	273	84.8
43	8	2.5	281	87.3
44	4	1.2	285	88.5
45	2	0.6	287	89.1
46	1	0.3	288	89.4
47	1	0.3	289	89.8
48	1	0.3	290	90.1
49	2	0.6	292	90.7
50	1	0.3	293	91.0
51	1	0.3	294	91.3
52	2	0.6	296	91.9
53	1	0.3	297	92.2
54	1	0.3	298	92.5

Satisfaction data. 252

COMM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
56	1	0.3	299	92.9
57	1	0.3	300	93.2
58	1	0.3	301	93.5
59	1	0.3	302	93.8
60	1	0.3	303	94.1
61	1	0.3	304	94.4
62	1	0.3	305	94.7
63	1	0.3	306	95.0
64	3	0.9	309	96.0
65	1	0.3	310	96.3
66	1	0.3	311	96.6
67	4	1.2	315	97.8
68	1	0.3	316	98.1
69	2	0.6	318	98.8
70	1	0.3	319	99.1
71	1	0.3	320	99.4
72	1	0.3	321	99.7
73	1	0.3	322	100.0

OTHER	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	2	3.4	2	3.4
1	7	11.9	9	15.3
2	13	22.0	22	37.3
3	1	1.7	23	39.0
4	1	1.7	24	40.7
5	8	13.6	32	54.2
6	4	6.8	36	61.0
7	3	5.1	39	66.1
8	1	1.7	40	67.8
9	1	1.7	41	69.5
10	4	6.8	45	76.3
11	1	1.7	46	78.0
12	2	3.4	48	81.4
13	1	1.7	49	83.1
14	1	1.7	50	84.7
15	1	1.7	51	86.4
16	1	1.7	52	88.1
17	1	1.7	53	89.8
18	4	6.8	57	96.6
19	1	1.7	58	98.3
20	1	1.7	59	100.0

Satisfaction data. 253

BEVER	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	1	1.1	1	1.1
2	14	16.1	15	17.2
3	3	3.4	18	20.7
4	4	4.6	22	25.3
5	3	3.4	25	28.7
6	3	3.4	28	32.2
7	26	29.9	54	62.1
8	1	1.1	55	63.2
9	2	2.3	57	65.5
10	5	5.7	62	71.3
11	2	2.3	64	73.6
12	1	1.1	65	74.7
13	1	1.1	66	75.9
14	1	1.1	67	77.0
15	3	3.4	70	80.5
16	1	1.1	71	81.6
17	1	1.1	72	82.8
18	2	2.3	74	85.1
19	1	1.1	75	86.2
20	1	1.1	76	87.4
21	2	2.3	78	89.7
22	2	2.3	80	92.0
23	2	2.3	82	94.3
24	2	2.3	84	96.6
26	1	1.1	85	97.7
27	2	2.3	87	100.0

Satisfaction data. 254

SALAD	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	0.5	1	0.5
1	27	14.3	28	14.8
2	3	1.6	31	16.4
3	12	6.3	43	22.8
4	1	0.5	44	23.3
5	10	5.3	54	28.6
6	7	3.7	61	32.3
7	4	2.1	65	34.4
8	27	14.3	92	48.7
9	2	1.1	94	49.7
10	3	1.6	97	51.3
11	6	3.2	103	54.5
12	2	1.1	105	55.6
13	6	3.2	111	58.7
14	2	1.1	113	59.8
15	8	4.2	121	64.0
16	6	3.2	127	67.2
17	1	0.5	128	67.7
18	10	5.3	138	73.0
19	2	1.1	140	74.1
20	3	1.6	143	75.7
21	2	1.1	145	76.7
22	2	1.1	147	77.8
23	5	2.6	152	80.4
24	4	2.1	156	82.5
25	1	0.5	157	83.1
26	1	0.5	158	83.6
28	2	1.1	160	84.7
29	6	3.2	166	87.8
30	1	0.5	167	88.4
31	2	1.1	169	89.4
32	1	0.5	170	89.9
33	7	3.7	177	93.7
35	2	1.1	179	94.7
36	1	0.5	180	95.2
37	1	0.5	181	95.8
38	1	0.5	182	96.3
39	3	1.6	185	97.9
40	3	1.6	188	99.5
41	1	0.5	189	100.0

Satisfaction data. 255

OTHERFD	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	1	0.7	1	0.7
2	1	0.7	2	1.4
3	5	3.4	7	4.7
4	2	1.4	9	6.1
5	1	0.7	10	6.8
6	2	1.4	12	8.1
7	7	4.7	19	12.8
8	13	8.8	32	21.6
9	3	2.0	35	23.6
10	11	7.4	46	31.1
11	1	0.7	47	31.8
12	2	1.4	49	33.1
13	4	2.7	53	35.8
14	2	1.4	55	37.2
15	10	6.8	65	43.9
16	9	6.1	74	50.0
17	8	5.4	82	55.4
18	4	2.7	86	58.1
19	2	1.4	88	59.5
21	4	2.7	92	62.2
22	1	0.7	93	62.8
23	1	0.7	94	63.5
24	2	1.4	96	64.9
25	4	2.7	100	67.6
26	1	0.7	101	68.2
27	1	0.7	102	68.9
28	4	2.7	106	71.6
29	8	5.4	114	77.0
30	1	0.7	115	77.7
31	3	2.0	118	79.7
32	4	2.7	122	82.4
33	1	0.7	123	83.1
34	2	1.4	125	84.5
35	1	0.7	126	85.1
36	3	2.0	129	87.2
37	2	1.4	131	88.5
38	1	0.7	132	89.2
39	1	0.7	133	89.9
40	1	0.7	134	90.5
41	1	0.7	135	91.2
42	1	0.7	136	91.9
43	1	0.7	137	92.6
44	1	0.7	138	93.2
45	1	0.7	139	93.9
46	1	0.7	140	94.6
47	1	0.7	141	95.3
48	1	0.7	142	95.9
49	1	0.7	143	96.6
50	1	0.7	144	97.3
51	1	0.7	145	98.0
52	1	0.7	146	98.6
53	1	0.7	147	99.3
72	1	0.7	148	100.0

Pilot data.

257

COMM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
9	2	16.7	2	16.7
10	1	8.3	3	25.0
13	1	8.3	4	33.3
15	1	8.3	5	41.7
16	2	16.7	7	58.3
20	2	16.7	9	75.0
24	1	8.3	10	83.3
33	1	8.3	11	91.7
73	1	8.3	12	100.0

BEVER	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	2	7.7	2	7.7
2	1	3.8	3	11.5
4	2	7.7	5	19.2
5	2	7.7	7	26.9
7	10	38.5	17	65.4
10	5	19.2	22	84.6
15	1	3.8	23	88.5
16	1	3.8	24	92.3
23	1	3.8	25	96.2
27	1	3.8	26	100.0

SALAD	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	1	4.3	1	4.3
3	1	4.3	2	8.7
5	1	4.3	3	13.0
7	1	4.3	4	17.4
8	7	30.4	11	47.8
11	2	8.7	13	56.5
13	2	8.7	15	65.2
14	1	4.3	16	69.6
16	1	4.3	17	73.9
18	2	8.7	19	82.6
21	2	8.7	21	91.3
42	2	8.7	23	100.0

Pilot data.

258

OTHERFD	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	1	4.5	1	4.5
3	2	9.1	3	13.6
12	4	18.2	7	31.8
13	1	4.5	8	36.4
14	1	4.5	9	40.9
19	1	4.5	10	45.5
21	1	4.5	11	50.0
29	1	4.5	12	54.5
33	3	13.6	15	68.2
34	1	4.5	16	72.7
54	1	4.5	17	77.3
59	1	4.5	18	81.8
65	3	13.6	21	95.5
66	1	4.5	22	100.0

VITA

Jana S. Gardner

Candidate for the Degree of

Master of Science

Thesis:

Major Field: Hospitality Administration

Biographical:

Personal Data: Born in Nowata, Oklahoma, on October 4, 1968, the daughter of Jim and Doris Walton. Married to Thomas L. Gardner on October 13, 1990.

Education: Graduated from Nowata High School, Nowata, Oklahoma, in May, 1986; received Bachelor of Science degree in Home Economics Education and Community Services from Oklahoma State University in 1992. Completed the requirements for the Master of Science degree with a major in Hospitality Administration at Oklahoma State University in December, 1996.

Professional Experience: Three years experience working for contract food service management companies. Retail Manager, November 1993 to September 1994; Food Service Director, September 1994 to September 1995; Catering Director, September 1995 to May 1996; Support Manager/Consultant, May 1996 to present.

Professional Memberships: National Restaurant Association, American Dietetic Association